FAMILY HEALTH DISEASE

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edited by
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Kraków 2024

ISBN 9788367491419
e-ISBN 9788367491198
DOI 10.48269/978-83-67491-19-8

On commission:

Andrzej Frycz Modrzewski
Krakow University
www.ka.edu.pl

Publisher:
AFM Publishing House / Oficyna Wydawnicza AFM

Technical Lay-out Editor: Oleg Aleksejczuk

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Family – Health – Disease. Preface

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DOI: 10.48269/978-83-67491-19-8-00

The monograph *Family – Health – Disease* is a part of an interdisciplinary issue on the impact health and disease have on the family. It includes eleven chapters, eight of which are case reports, while the remaining three are original studies. The authors of the individual chapters are doctors, nurses, midwives, physiotherapists, biologists and psychologists who are involved in academic activities and teaching in various units, including medical students. Both the structure and content of the individual chapters of the monograph reflect the editors' intent in the title very well. Furthermore, they make research contributions to the discipline of medical and health sciences.

The study by Kinga Tułacz, Julia Kronkowska and Anna Rozensztrauch, which forms the first chapter, is a case report that presents the specifics of caring for a newborn from a neglected pregnancy ending with

a home birth without medical assistance. The authors point out that within the framework of perinatal care standards it is the midwife who provides individual and complex care for the newborn as well as the mother during pregnancy and after childbirth. The next chapter by Kinga Tułacz *et al.*, reports two cases of women following a low-carbohydrate diet while breastfeeding. An interesting conclusion is put forward, namely, that the samples of breast milk collected from patients on a low-carbohydrate diet contained higher protein levels. Therefore, the authors point out that the introduction of a low-carbohydrate diet in breastfeeding women requires consultation with a dietitian due to the negative consequences of dietary errors. The following chapter by Anna Dąbek, Marta Wójcik and Iwona Zborowska, which is based on a case study, presents a plan of nursing care for a patient with coronary artery disease. Due to fatigue and reduced exercise tolerance, the patient was diagnosed with difficulties in daily functioning, both physically and psychosocially.

The next three chapters are based on case studies and present the use of the International Classification for Nursing Practice (ICNP®). One of the chapters, by Marcelina Bańdo and Renata Bakalarz, focuses on the model of nursing care for a patient after thyroid cancer dissemination and metastasis of papillary and follicular thyroid carcinoma. The following case study, by Anastasia Shapar and Agnieszka Skorupska-Król, shows the model of care for patients with relapsing-remitting multiple sclerosis. The third chapter by Julia Zabawa and Renata Bakalarz is a developmental model of care for a patient with amyotrophic lateral sclerosis (ALS), with the use of ICNP®.

Two of the next case reports address issues in cancer care. Iwona Klisowska *et al.* prepared the model of nursing care for a patient with hormonally inactive pituitary macroadenoma, while Iwona Twardak *et al.* describe health problems in the care of a patient with malignant prostate cancer.

The section based on original studies consists of three chapters. Alicja Stołkowska, Marzena Lech-Brytan and Mariola Seń analysed the connection between the assessment of the level of acceptance of the disease and

the quality of life of patients with Parkinson's disease, utilizing the diagnostic survey method with the aid of standardised assessment tools.

Mariola Seń *et al.* have made an assessment of the relationship between self-efficacy and health behaviours and the level of knowledge about breast cancer prevention among professional nurses. This is followed by Marcelina Powązka *et al.*'s paper, who have written an assessment on parents' knowledge and awareness of development and care in the case of postural defects in children.

The monograph chapters compiled by the authors will be a valuable resource for students of medicine and health sciences, professionals in the medical field as well as researchers taking on the problems of health and disease.

The editors of this monograph hope that this subject will facilitate the work of those taking on the challenges brought by disease. We invite you to read this book with the hope that you will receive its contents favourably.

Chapter 1

Care of a newborn from a neglected pregnancy – a case report

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DOI: 10.48269/978-83-67491-19-8-01

Abstract
Prenatal neglect is a hidden form of violence in which a pregnant woman intentionally, or through negligence, exposes her child to the risk of loss of life or health.

The aim of this study is to present the specifics of caring for a newborn from a neglected pregnancy.

The research method used in this study is the analysis of an individual case based on the nursing process and a literature review. The following nursing diagnoses were made: risk of overheating and dehydration of the newborn, nappy rash, disturbances in the process of building emotional bonds between parents and the newborn, lack of willingness to start breastfeeding, inappropriate

positioning of the newborn, and the risk of lowering the newborn's immunity during and after antibiotic therapy initiated due to increased CRP levels.

Many scientific articles similarly address care problems, but the specifics of caring for such a newborn are omitted.
Key words: neglected pregnancy, newborn, family

Introduction

Pregnancy is a unique period during which numerous changes occur in a woman's body, including changes in nutrient demand. The health of the developing foetus and the pregnant woman is largely dependent on the diet used during this unique period of their lives. Constant failure to meet basic nutritional needs supplied by food and to properly select supplementation increases the risk of abnormal pregnancy, placental insufficiency, premature birth and foetal development defects. A balanced, varied diet supplemented with selected vitamins and minerals should form the basis of a pregnant woman's nutrition for the proper development of the foetus and the health of the mother [1].

Article 68 of the Constitution of the Republic of Poland provides special healthcare information for children and women throughout pregnancy and six weeks after childbirth. This means that all follow-up visits to a gynaecologist, during pregnancy and the postpartum period, laboratory tests and ultrasound tests, antenatal education and patronage visits, as well as additional procedures performed for the good of the mother and child standardised by the Organizational Standard of Perinatal Care, are free of charge.

Preconception care is crucial to ensure optimal pregnancy development. Its foundation is prevention because the most effective medical action is disease prevention. An important element of preconception care is education and counselling, especially regarding the use of drugs that have a significant impact on the health of the offspring. Building women's awareness of behaviours affecting the course of pregnancy encourages them to change their health habits, which results in reducing the occurrence of congenital defects and complications of premature birth, which are the two main causes of death in children in the first year of life [2].

The first moments together, the parents' positive approach to the new family member, and the way they enter a previously unknown stage of life favour the development of the parent–child bond. The first days after birth are a specific period in which both the mother and father strengthen their new roles, and the newborn learns to live outside the mother's womb. During this time, the child experiences a need for closeness, which the woman intuitively wants to provide. Closeness is a key element of parenting. Sensitivity to the newborn's messages teaches the parent how to read and properly respond to the newborn's current needs. Over time, learning about and communicating mutual needs and how to meet them efficiently becomes easier.

Family plays a special role in human life. It is responsible for shaping the characteristics of the individual that will allow him/her to function in the surrounding reality. A family that functions properly is the most beneficial environment for a child's development. Experiences passed down in the family fundamentally influence the course of human development, reflected in the quality of their future. Experiences in the family home and emotional connections with parents during childhood play an important role in modelling attitudes towards one's own family and functioning in society [3].

The functioning of many families depends on the problems they encounter in everyday life. They contribute to maintaining order and harmony within the range of proper functioning. Disorders may manifest themselves on both sides, both in children and parents. A defect in the functioning of the family may appear at the level of emotional bonds, interpersonal communication, and value systems that determine the family's behaviour at home and in the external environment. The transient nature of the disorders usually does not result in serious consequences. A well analysed situation and insight into existing disorders can be a lesson in coping with difficult circumstances and successfully overcoming them. The basis for the development of pathology begins when disorders in the functioning of the family occur regularly. The moment dysfunctions and pathologies in the family take control, they become a real threat to the family community and, in particular, to the offspring raised within

it. They disturb the proper formation of ethical values and the behavioural model of children. Pathologies are often the result of abuse or addiction, the consequences of which are aggressive reactions of parents, which result in the patterns observed being reinforced in children as correct, often repeated by them in adulthood. Children are a particularly vulnerable group in the population that is sensitive to stressful and traumatic experiences that arouse a sense of threat and emotional rejection, such as living in a dysfunctional family. The consequences of growing up in this specific environment are the likelihood of psychophysical, behavioural, and socialisation disorders resulting from experiences that exceed the child's remedial and adaptive abilities [3].

Every year, due to parents' addictions, helplessness in matters of care and upbringing, socioeconomic conditions, limited proper and dignified development, parental authority is taken away from parents or partially limited, and children are placed in foster care. Statistics Poland claims that "at the end of 2020, 71.5 thousand children deprived entirely or partly of their own family, were staying in foster care, of which 55.5 thousand children in family foster care and 16.0 thousand children in institutional foster care. […] 8376 children were admitted for the first time in family foster care in 2020" [4, p. 1].

The aim of this study is to present the specifics of caring for a newborn from a neglected pregnancy, ending with a home birth without medical assistance. The diagnostic and treatment process is discussed, including potential complications resulting from the lack of medical care during pregnancy and childbirth, as well as from an unstable family situation.

A case report

The research method used in this study is the analysis of an individual case, in which the patient is understood as a bio-psycho-social entity. It is based on the analysis of literature and the nursing process, which consists of the following factors: assessment of health status and making a nursing diagnosis, planning of nursing, implementation of the care plan and assessment of nursing results. Using this multi-stage approach effectively increases the chances of taking the most beneficial actions for the patient,

thus providing them with holistic care, which results in achieving the intended evaluations.

A male newborn with C IV, P IV was born naturally in the 40th (?) week of pregnancy. The pregnancy was neglected, and not covered by medical care. The newborn was born weighing 3,200 g and measuring 56 cm. The birth took place at home without medical assistance or intervention.

Family history: MW's mother, 33 years old, no profession, good health, blood group A RhD- (negative). Father – unknown. The woman declared that she does not smoke tobacco products and does not consume alcohol. She does not mention any diseases in her family. The general living conditions are unsatisfactory. During the interview, information was obtained about the condition of the apartment, which required general renovation. The biggest difficulty was the lack of a bathroom. The mother confessed that the neglect of the last and previous pregnancies, as well as the decision to give birth at home, resulted from pressure and intimidation by her partner. The man hid the woman at home throughout her pregnancy and forbade her to have contact with her family, midwife, or doctor, as well as representatives of the Social Welfare Centre and the District Family Help Centre. The woman does not maintain contact with any of her previous children. The first child is being raised by the biological father. The two younger siblings were placed in a Family Children's Home by the decision of the court, and the parents were deprived of their parental rights.

Nursing diagnosis

Nursing diagnosis 1:
the risk of overheating and dehydration of the newborn caused by phototherapy
Purpose of care:
minimising the risk of overheating and dehydration of the newborn resulting from the phototherapy process.
Nursing intervention plan:

– maintaining the appropriate distance between the light source and the child's skin surface;

– controlling exposure power;
– undressing the newborn;
– providing eye protection;
– patient observation;
– weight control;
– body temperature monitoring;
– assessment of urine output;
– monitoring vital signs;
– controlling the volume of food intake;
– frequent feeding of the patient.

Justification for implementing nursing interventions:
the most frequently used, and effective method in the treatment of hyperbilirubinemia in newborns, is phototherapy using fibre-optic lamps. It uses white or blue light waves to convert bilirubin into its non-toxic, water-soluble derivatives, which are then excreted from the body along with bile and urine. This method is safe. It is recommended that it be carried out without separating the mother and child in the "rooming-in" system, maintaining continuity, taking into account breaks for feeding and care activities. When using phototherapy, the newborn's body temperature, hydration level, urine output, and body weight should be monitored. In order to reduce the risk of overheating and excessive water loss, the newborn's body temperature is monitored at least every four hours. Dehydration in children is reflected in their appearance and behaviour, which is why visual assessment is so important. Patients often lose their appetite, are apathetic, have reduced muscle tone, and slow reactions to external stimuli. The skin and mucous membranes in the newborn's mouth are dry and the fontanelles are concave. Excessive water loss reduces urine output, which allows for the assessment of the ability to excrete the product of bilirubin metabolism. The colour of urine darkens as bilirubin excretion increases, allowing the effectiveness of treatment to be assessed. Proper nutrition of the newborn and control of the volume of food consumed, as well as the frequency of feedings allow us to determine the patient's hydration status. Maintaining breast milk feeding is recommended [5].

Evaluation of care outcomes and nursing interventions undertaken:
procedures have been implemented to minimise the occurrence of overheating and dehydration. The homeostasis of the patient's body was not disturbed.

Nursing diagnosis 2:
nappy rash in the buttocks area resulting from inadequate hygiene caused by the mother's lack of knowledge about it
Purpose of care:
improving the condition of the skin around the buttocks and equipping the mother with knowledge about proper hygiene of the child's skin.
Nursing intervention plan:
- assessment of the newborn's skin condition;
- maintaining proper hygiene in the buttocks area;
- frequent nappy changes;
- airing the buttocks;
- use of protective ointments;
- encouraging the mother to breastfeed;
- mother's education in buttock skin care;
- providing instructions on proper hygiene in the buttocks area;
- recommendation to use delicate cotton pads or wipes soaked in water to care for inflamed skin;
- drawing attention to the need for regular care.

Justification for implementing nursing interventions:
the newborn's skin is an important element in the process of adaptation to extrauterine life. As one of the main sense organs, it serves many functions. It protects internal organs, provides a barrier against infections, and participates in thermoregulation of the body. Appropriate attention to hygiene and skincare is one of the important determinants of proper child care. The buttocks area is particularly susceptible to irritation and damage resulting from the irritating effects of urine and stool. Nappy rash is one of the most common skin lesions in newborns and infants. It is usually located on the anus, perineum, and buttocks; and less frequently on the inguinal folds, thighs, and lower parts of the abdomen. The lesions

associated with nappy rash are characterised by sharp demarcation from healthy skin, local erythema, erosions, a tendency to ooze serous fluid, and minor bleeding. In situations where the changes are severe, there is a risk of developing bacterial and fungal infections. Factors initiating nappy rash include not changing nappies often enough, overheating, mechanical damage to the skin, irritating effects of nappies, hygiene products and cosmetics used to care for the baby's skin, rubbing of adjacent skin folds, long-term contact with digestive enzymes in stool remnants and ammonia produced as a result of the decomposition of urine by microorganisms, antibiotic therapy and rotavirus infection. Treatment involves proper care and removal of the causes leading to dermatitis. The basic action to prevent irritation is to change nappies every three to four hours, or more often if they are dirty. It is worth putting emphasis on the quality of nappies. As a preventive measure, one can protect the skin with moisturising products which contain lanolin or allantoin. The use of ointments containing zinc is recommended for the treatment of already-existing sores. Using this type of product on healthy skin causes strong adhesion, and irritation and thus provokes symptoms of inflammation. An important aspect of preventing nappy rash is breastfeeding. The urine of children eating natural food has a lower pH and lower activity of faecal proteases. Irritations are less common and are often milder. Parental education is a key element in the prevention and treatment of nappy rash because their knowledge and actions significantly influence the condition of the newborn's skin [6].
Evaluation of care outcomes and nursing interventions undertaken:
the condition of the newborn's skin around the buttocks improved as a result of the measures introduced. The mother has comprehensive knowledge of proper hygiene of the child's skin.

Nursing diagnosis 3:
disturbances in the process of building an emotional bond between parents and their newborn caused by lack of interest in care
Purpose of care:
encouraging parents to actively participate in newborn care. Supporting caregivers in building bonds with their children.

Nursing intervention plan:
- observation of the mother's behaviour towards the child;
- assessment of the process of building a bond between mother and newborn;
- ensuring the possibility of caring for a newborn in the "rooming-in" system;
- mobilising the mother to actively participate in the process of caring for the newborn;
- presenting the importance of touch as an element of building bonds and discussing its impact on the child's development;
- encouraging the mother to massage her newborn regularly and discussing the benefits of doing so;
- encouraging the mother to breastfeed;
- encouraging parents to practise kangaroo care.

Justification for implementing nursing interventions:
a fundamental stage in human development is the first few hours after birth. This is a key element for the proper development and adaptation of the child's body to extrauterine life. The mother's presence at this time is important for the proper colonisation of the newborn's body with maternal bacterial flora, metabolic and neurobehavioural stabilisation of the child, thus providing it with more favourable adaptation conditions. The first contact also means trying to breastfeed, which gives an optimal start to lactation. The course of the early postpartum period affects the mental and emotional state of obstetricians and reduces the risk of postpartum depression. It also allows for the building of proper relationships between the mother and the newborn. Kangaroo care is skin-to-skin contact between mother and baby, which involves placing the newborn on the mother's chest, the main goal of which is to stimulate breastfeeding and create an emotional bond between two people, therefore ensuring that the baby feels safe. During such close contact, the newborn hears the mother's heartbeat, is rocked as her chest rises, is colonised with her bacterial flora, is warmed by her body temperature, and has the opportunity to breathe. The benefits of kangaroo care are mutual. Thanks to this practice, the mother reduces the stress associated with childbirth, creates an emotional

bond with the baby and learns the signals it sends faster, and the secreted oxytocin causes the uterus to contract faster and reduces postpartum bleeding. Massage is a form of building emotional bonds between parents and children through getting to know each other. Children who are massaged by their parents show less irritability, are more rested, cry less, sleep better, have fewer digestive problems, adapt faster to new conditions, and experience fewer postnatal complications and stressful behaviours. Other means of parent-child communication are speaking and singing, because newborns respond well to their parent's voice, known from intrauterine life, which positively affects their development and contact with the surrounding world [7,8].
Evaluation of care outcomes and nursing interventions undertaken:
the mother participates in the care of the newborn, but her involvement is not sufficient to provide the child with conditions for proper development.

Nursing diagnosis 4:
lack of willingness to start breastfeeding due to distancing oneself from the newborn caused by the mother's lack of knowledge of the benefits of breastfeeding
Purpose of care:
equipping mothers with knowledge of the benefits of breastfeeding. Encouragement to try natural feeding.
Nursing intervention plan:
- interviewing the mother;
- encouraging the mother to try breastfeeding;
- mother's education on proper latching of the baby to the breast;
- discussion of the composition of breast milk and the beneficial effects of natural feeding on the mother and child;
- presenting the economic benefits of breastfeeding;
- drawing attention to current recommendations regarding breast milk feeding;
- presenting the impact of breastfeeding on building the bond between mother and child;

– encouraging the mother to express milk if she does not accept breastfeeding.

Justification for implementing nursing interventions:
feeding a child with human milk directly from the breast is one of the basic elements of creating a bond between mother and child and a natural way of providing them with nutrients. A woman's food has an optimal composition in terms of quality, quantity and proportion of ingredients, depending on the duration of pregnancy and lactation, as well as the needs and metabolic and digestive capabilities of the newborn. Infant milk is produced up to three to four days after birth, and transitional milk is distinguished from mature milk by a higher protein concentration and lower carbohydrate concentration. The composition of mature milk is finally defined after two to three weeks of active lactation. The foundation of breast milk carbohydrates is lactose. Proteins have building, enzymatic and hormonal functions. They also play a significant role in immune processes, in particular, immunoglobulins, lysozyme, and lactoferrin [9,10].

Oxytocin, prolactin and beta-endorphins play the main role in the lactation process. Prolactin prepares the breasts for milk production, suppresses fear and anxiety, strengthens the mother's sensitivity and helps her identify the child's priority needs, and protecting the child against parental abuse. Artificial feeding may reduce infants' sense of security because it requires less emotional involvement from the mother in caring for the child. Oxytocin reduces the pain and effort associated with childbirth, regulates the rhythm of sleep and wakefulness, reduces the feeling of fear and induces empathetic behaviour in the woman. Natural feeding has a protective effect on low mood and the occurrence of depression during this period. For a child in the early stages of life, breastfeeding is the optimal way to meet his or her needs. It soothes emerging pain and discomfort. Tryptophan and serotonin found in breast milk strengthen the development and functioning of the baby's brain. Hormones and other ingredients contained in the mother's breastmilk, such as melatonin, cholecystokinin and nucleotides, establish the newborn's daily rhythm of wakefulness and sleep. Additional benefits of natural feeding newborns include a significant reduction in the risk of acute otitis media and gastrointestinal

infections. Children who have been breastfed in the past have a lower tendency to develop obesity and type I and II diabetes. Natural feeding is also beneficial for economic reasons. It does not require mixture preparation or financial outlays. It is available anywhere and at any time, meeting the child's need for nutrients and fluids [11,12].
Evaluation of care outcomes and nursing interventions undertaken:
the mother knows the benefits of natural feeding but does not attempt to latch the newborn to the breast. Does not express a desire to express milk. The baby is fed with formula milk.

Nursing diagnosis 5:
risk of psychomotor development disorders and head deformations
Purpose of care:
increased knowledge of the mother in the correct positioning of the newborn and reducing the risk of psychomotor development disorders and head deformations.
Nursing intervention plan:
- mother's education in the correct positioning of the newborn;
- discussion of current recommendations regarding changing the position of the newborn;
- providing instructions on the correct positioning of the newborn;
- encouraging the mother to massage her newborn regularly and discussing the benefits of doing so;
- presenting the risks resulting from inappropriate positioning of the child;
- drawing attention to the structure of the newborn's skull in the context of the risk of head deformation;
- recommendation to consult a physiotherapist after hospitalisation.

Justification for implementing nursing interventions:
the child's motor development requires the proper maturation of individual elements of the body, especially those that influence each other: the musculoskeletal system and the central nervous system, which is responsible for receiving sensory stimuli and developing balance. At the moment of birth, the newborn has little ability to perform anti-gravity movements,

but it has mechanisms ensuring the correct body position, depending on anatomical conditions and tonic reflexes. The tendency to forcibly turn the head to one side is a common phenomenon among newborns and infants. This may be due to torticollis, vision and hearing disorders, or plagiocephaly. The consequences of head position asymmetry may result in asymmetry in the positioning of other body elements and disturbances in weight transfer and muscle tension distribution. Growth and differentiation are the two main processes on which a child's development is based. It is based on the maturation of the central nervous system, which is reflected in the smooth improvement of motor functions and appropriate response to various factors coming from the world around the child. In order to create optimal conditions for the newborn's physiological development, it should be provided with proper care as early as possible to prevent the occurrence of possible psychomotor abnormalities and their further development. The most important aspect of proper care is the need to change the position of the newborn and the side on which it is lifted or carried. Place the baby on its stomach, back and both sides, paying special attention to the sleeping position. As a result of working with the patient, we do not allow for motor development disorders. Actions taken with the newborn should be performed confidently but slowly. They should be perceived positively by the child, without causing fear, body tension, asymmetrical positioning or muscle tension, so that the child can get used to new conditions, have the opportunity to improve the sense of touch and balance, as well as develop the sense of the body in space [13,14].
Evaluation of care outcomes and nursing interventions undertaken:
the mother has knowledge and skills in the correct positioning of the newborn, but the information provided is not used by the woman in practice.

Discussion

Domestic violence is one of the most serious problems in the modern world. It is one of the most critical threats to the family community, as well as its individual members, including unborn children. Neglect is a form of violence against a child, both in the prenatal and postnatal period, which

results in disorders of psycho-physical development. In their article, Sochocka and Komenda-Kołecka [15] define violence as unhealthy behaviour of a pregnant woman, inadequate medical care, failure to breastfeed, improper feeding of the child, harmful treatment of the offspring, as well as deprivation of the need for love. According to Wójcik, the relationship between the occurrence of prenatal violence is related to the level of knowledge about factors that threaten the life and health of unborn children and the woman's bio-psychosocial maturity [16]. Factors that may constitute negligence also include housing conditions, the influence of the intention to become pregnant, marital status and support of the partner and immediate family. This confirms the existence of many variables that determine the occurrence of violence from parents towards their children [15–17].

In his article, Łosik confirms the validity of the actions taken towards the patient described, emphasising the role of educating parents about nappy rash and the importance of providing information on proper hygiene of the nappy area. The most important factors of proper care include keeping the newborn's skin clean and dry, and recommending changing nappies every time they get dirty, but at least every three to four hours. To obtain a better therapeutic effect, it is recommended to air the nappy area at least three times a day for ten minutes [18].

Currently, the idea known as "attachment parenting", created by the American paediatrician Sears, is being promoted. The basis of attachment parenting is mainly physical contact with the child, especially sensitive touch and breastfeeding, ensuring the newborn creates a safe bond with its parents. According to Trębicka and Zagórska, warm physical contact with the mother, whose smell, tone of voice and heart rhythm the newborn knows from foetal life, or with the father in the form of carrying, rocking, stroking, as well as massage brings peace and calm to the child, relieves pain and fear, thus ensuring a sense of security. Good physical contact with the caregiver has a positive impact on communication skills, physical and emotional development, the health of the developing offspring, as well as social and emotional maturity in the later years of life. Limiting or depriving a child of a close emotional bond with a parent may disturb its proper development. The mother was provided with all this information

so that she could make conscious decisions regarding the form of care for the new family member [19,20].

Breastfeeding is a particularly important factor in the process of building a bond with a newborn. According to Baranowska [9], supporting natural feeding should be considered as a way to prevent harm to children. In her article, she describes activities that reduce child abuse by mothers, such as the use of first skin-to-skin contact or the mother's stay with her child in the "rooming-in" system. Natural feeding supports building a safe bond and helps the child cope with stressful stimuli. This publication highlights the psychological and physiological benefits of breastfeeding for both the newborn and the mother, allowing for the creation of a stronger bond, better understanding of the child's needs and the ability to respond to them, coping with the difficulties of the postpartum period, as well as finding oneself in the role of a mother. The study *Breastfeeding in the 21st century: epidemiology, mechanisms, and lifelong effect* presents the results of studies that report that breastfeeding in high-income countries is statistically shorter than in middle- and low-income countries. However, in less developed countries, only 37% of infants under six months of age are exclusively breastfed. Promoting breastfeeding can prevent approximately 823,000 child deaths and 20,000 women's deaths from breast cancer each year. According to experts, the quality and quantity of protein consumed by the infant should be controlled when feeding with formula. Data from the research included in Pięta's publication suggest that consuming excessive amounts of protein early in life is associated with rapid weight gain and an increased risk of obesity later in life. The results of the study showed that feeding infants with a lower-protein infant formula (1.77 g/100 kcal) compared to milk with a higher amount of protein (2.9 g/100 kcal) led to lower body weight and a lower BMI in the first twenty-four months of life, comparable to the parameters of children fed with human milk. According to the authors of the study, reducing the amount of protein in milk replacers may contribute to reducing the risk of becoming overweight and obesity in the later years of a child's life [9,21–24].

Infant asymmetry in the paper by Michalska *et al.* is defined as a clinical condition with disorders of body structure, posture or motor skills,

characterised by various origins, places of occurrence and degrees of intensity. There are structural, functional and motor asymmetry, which may affect the entire body or a specific area. Skull deformations are often associated with premature closure of the cranial sutures, but are mainly the result of external forces. The relationship between the frequency of asymmetry in an infant and the child's age is thoroughly documented. In Michalska's *et al.* paper, which refers to other studies, it was found that asymmetry in infants occurs in 16 to 22% of cases at the age of six to seven weeks, and in 19.7% at the age of four months. By age two, the incidence of the disorder drops to 3.3% [13].

A midwife's care for a newborn with a history of prenatal neglect influences its adaptation process to extrauterine life, the formation of bonds with parents and further development. Guided by the standard of perinatal care, the midwife provides comprehensive care for the obstetrician and the newborn. Using an individual case analysis allows observations to be documented, diagnoses the deficits of the mother and child, introduces actions related to the diagnoses made, and assesses their effectiveness. Of the members of the interdisciplinary therapeutic team, it is the midwife who devotes the most time and attention to the patient and his/her caregivers. As part of perinatal care, the midwife helped parents find their new role and develop a sense of responsibility for the new family member. She showed support, provided necessary tips and information, and tried to ensure a sense of security during hospitalisation [25].

Conclusions

Particular attention should be paid to women who were not provided with medical care during pregnancy, because the use of prenatal violence leads to postnatal violence, which most often manifests itself in the form of parents neglecting to care for the child.

It is important for the midwife to nurture and strengthen the bond between parents and the child, because a proper bond, the feeling of being loved, touch and natural feeding have a significant impact on the child's development.

A newborn with a history of illness requires careful observation from medical staff in order to detect, prevent and reduce the scale of possible problems in a timely manner.

Antenatal education plays an important role in a conscious approach to parenthood, but unfortunately many patients do not know about the possibility of taking advantage of it free of charge under the National Health Fund.

The midwife acts as a support person for the parents, is a source of information and guidance, and motivates the patient to take care of the newborn.

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Chapter 2

Composition of breast milk in women on a low-carbohydrate diet: a report of two cases

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DOI: 10.48269/978-83-67491-19-8-02

Abstract
There is no clear definition of low-carbohydrate diets (LCDs). What LCDs have in common, however, is that they restrict the intake of carbohydrates relative to standard recommended diets. Breast milk is the best form of nutrition for newborns and infants. This study reports two cases of women who followed a LCD while breastfeeding. The breast milk sample collected from patient 1 eighteen days after the introduction of a LCD had a fat content of 2.7 g/dL, whereas the breast milk sample collected from the patient fifty days after the introduction

of the diet had a fat content of 2.9 g/dL. Both the samples had a protein content of 1.3 g/dL and a carbohydrate content of 7.9 g/dL. The breast milk sample collected from patient 2 had a fat content of 3.5 g/dL, protein content of 1.9 g/dL, carbohydrate content of 8.2 g/dL and calorie content of 73 kcal/dL. The samples of breast milk collected from patients on a LCD contained higher protein levels. Breastfeeding women are particularly at risk of the negative consequences of dietary mistakes.
Key words: breast milk, low-carbohydrate diet, protein

Introduction

There is no univocal definition of the term "low-carbohydrate diet" (LCD), which covers heterogeneous nutritional regimens. What LCDs have in common, however, is that they restrict the intake of carbohydrates relative to standard recommended diets. In a LCD, less than 45% of daily macronutrient intake should come from carbohydrates [1].

The ketogenic diet (KD) is the most restrictive LCD. The aim of reducing carbohydrate intake to 20–50 g/day is to induce nutritional ketosis. A carbohydrate intake of less than 50 g/day results in glycogen depletion and ketone production through the mobilisation of fat stores. Ketone bodies produced during nutritional ketosis, such as acetoacetate, acetone and beta-hydroxybutyrate, can be measured as serum or urine ketone concentrations [2]. Wells *et al.* defined the term "ketogenic diet" as any diet therapy resulting in a ketogenic state of human metabolism [3].

A review by de Brito Sampaio shows that the KD has for many years been used as a treatment option for drug-resistant epilepsy, both in children and in adults. However, the underlying mechanism of the action of the KD remains unclear, with studies in animal models of epilepsy indicating that it is much more complicated than has been reported so far and involves changes in mitochondrial function, the impact of ketone bodies on neuronal function and the release of neurotransmitters, antiepileptic effects exerted by fatty acids and/or glucose stabilisation [4].

The following four major KD therapies are used in the treatment of drug-resistant epilepsy: the classic KD, the Atkins diet, the medium chain triglyceride KD and the low glycaemic index treatment [3]. LCDs are also

increasingly used as a treatment option for obesity, diabetes, polycystic ovary syndrome, neurological disorders and cancer. However, further research is necessary to investigate the effectiveness and safety of the use of LCDs in the treatment of these conditions [5].

Accordingly, we are seeing an increasing number of pregnant or breastfeeding women following a LCD, even though the diet is not recommended to be used during this period of life [6]. Thus, questions arise as regards the composition of breast milk in women in ketosis. Breast milk is the best form of nutrition for newborns and infants. It provides all the nutrients and bioactive substances that a baby needs for healthy growth and development for the first six months. After that time, when complementary foods need to be introduced due to breast milk not providing sufficient energy, breast milk remains the basic food source of protein. The bioactive components of breast milk play different roles, influencing the development of the immune system and intestinal microflora of infants [7]. It is known that the quality of fats consumed by breastfeeding women is important given the varying proportions of trans isomers and fatty acids which are the precursors of long-chain polyunsaturated fatty acids (LCPUFA) in breast milk depending on what the mother eats [8]. The composition of breast milk varies depending on the stage of lactation. The breasts may start to produce prepartum milk as early as after the sixteenth week of gestation. Prepartum milk is characterised by high protein, sodium and chloride levels and low levels of lactose, glucose, potassium and fat. In the first few days after birth, the breasts produce colostrum, which is a thick, yellow fluid that contains high concentrations of immunoglobulins and leukocytes. Colostrum is produced in small quantities and contains higher protein levels and lower levels of fat and lactose compared with mature milk. Transitional milk replaces colostrum approximately five days after birth. It contains lower levels of protein and immunoglobulins and higher levels of lactose, fat and water-soluble vitamins. After approximately two weeks, the breasts start to produce mature milk, which contains more calories, higher levels of lactose and fat and lower levels of protein [8–10]. The aim of this study is to analyse the composition of breast milk in women on a LCD.

Material and methods

This study reports two cases of women following a LCD while breastfeeding.

Patient 1 was breastfeeding a thirteen-month-old baby. Two breast milk samples were collected from the patient: the first sample was collected eighteen days after the introduction of a LCD (with transition to ketosis) and the second one was collected fifty days after the introduction of the diet. Capillary blood ketone levels were monitored. In addition, basic blood tests were performed and the capillary blood acid-base balance was measured during the diet period.

Patient 2 had followed a KD for approximately four years before pregnancy and followed a LCD during pregnancy and while breastfeeding. One breast milk sample was collected from the patient in the first week of breastfeeding. A complete blood count was performed for the patient when she was breastfeeding while on a LCD.

The breast milk samples were adequately prepared and analysed using the MIRIS Human Milk Analyzer. The results are expressed in g/dL. The Human Milk Analyzer is based on mid-infrared transmission spectroscopy.

Ketone levels were measured using the OptiumXido Neo glucometer (Abbott) with blood β-ketone test strips.

Blood tests were performed in the following laboratories: Dolnośląskie Centrum Diagnostyki Laboratoryjnej (Lower Silesia Diagnostic Laboratory Centre), Uniwersytecki Szpital Kliniczny we Wrocławiu (University Teaching Hospital in Wrocław) and Synevo, Wrocław.

Results

The breast milk sample collected from patient 1 eighteen days after the introduction of a LCD had a fat content of 2.7 g/dL, whereas the breast milk sample collected from the patient fifty days after the introduction of the diet had a fat content of 2.9 g/dL. Both the samples had a protein content of 1.3 g/dL and a carbohydrate content of 7.9 g/dL. The calorie content of

the breast milk sample collected on day 18 was 62 kcal/dL, whereas the calorie content of the sample collected on day 50 was 64 kcal/dL (Table 1). The patient was in good overall health during the entire observation period, which is also confirmed by the patient's test results (Table 2,3). It was only in the case of Ca++ and Cl- levels that slight deviations were found. However, the results after calculating of the anion gap were within the reference range (Table 4).

Table 1. Composition of breast milk in patient 1 during the low-carbohydrate diet period

Breast Milk Macronutrient Content	Fat [g/dL]	Protein [g/dL]	Carbohydrate [g/dL]	Total solids [g/dL]	Energy [kcal/dL]	True protein [g/dL]
Day 18 of the low-carbohydrate diet	2.7	1.3	7.9	12.1	62	1.1
Day 50 of the low-carbohydrate diet	2.9	1.3	7.9	12.3	64	1.0

Source: compilation based on authors' own research.

Table 2. Ketone levels in patient 1 during the observation period

Date	10 Oct 2021	14 Oct 2021	24 Oct 2021	26 Oct 2021
Level (mmol/L)	2.2	1.5	1.4	1.9

Source: compilation based on authors' own research.

Table 3. Results of blood tests performed for patient 1 during the low-carbohydrate diet period

Test	Result	Unit	Ref. values
Leukocytes	7.5	10*3/uL	4.00–10.00
Erythrocytes	4.86	10*6/uL	4.00–5.00
Haemoglobin	15.5	g/dL	12.0–16.0
Haematocrit	45.1	%	37.0–47.0
MCV	92.8	fL	80.0–97.0
MCH	31.9	Pg	26.0–34.0
MCHC	34.4	g/dl	31.0–36.0
RDW-SD	46.9	fL	39.0–52.0
RDW-CV	13.7	%	11.5–14.5
PLT	265	10*3/uL	140–440

Test	Result	Unit	Ref. values
PDW	11.8	fL	9.0–16.0
MPV	10.0	fL	7.0–12.0
P-LCR	24.9	%	19.0–47.0
PCT	0.26	%	0.12–0.36
Erythroblasts	0.0	/100 WBC	0–0.0
Erythroblasts #	0.00	10*3/uL	0–0.00
ALAT	24	U/L	0–55
ASPAT	21	U/L	5–34

Source: compilation based on authors' own research.

Table 4. Results of capillary blood acid-base balance assessment in patient 1

Test	Result	Unit	Ref. values
pH	7.393	-	7.350–7.450
PCO2	38	mmHg	35–45
PO2	87	mmHg	75–100
Na+	140	mmol/l	134–146
K+	4.2	mmol/l	3.6–4.9
Ca++	1.07	mmol/l	1.15–1.32
Cl – chloride ion concentration	110	mmol/l	98–106
HCO3 act.	22.5	mmol/l	22.0–28.0
BE(B)	-1.5	mmol/l	+/- 2.5 mmol/l

Source: compilation based on authors' own research.

The breast milk sample collected from patient 2 had a fat content of 3.5 g/dL, protein content of 1.9 g/dL, carbohydrate content of 8.2 g/dL and calorie content of 73 kcal/dL (Table 5). The patient was in good overall health during the entire observation period, as confirmed by the test results shown in Table 6.

Table 5. Composition of breast milk in patient 2 during the low-carbohydrate diet period

Breast Milk Macronutrient Content	Fat [g/dL]	Protein [g/dL]	Carbohydrate [g/dL]	Total solids [g/dL]	Energy [kcal/dL]	True protein [g/dL]
Low-carbohydrate diet	3.5	1.9	8.2	13.7	73	1.5

Source: compilation based on authors' own research.

Table 6. The results of the blood test performed for patient 2 during the low-carbohydrate diet period

Test	Result	Unit	Reference Values
Leukocytes	4.44	10*3/uL	4.00–10.00
Erythrocytes	4.72	10*6/uL	4.00–5.00
Haemoglobin	15.2	g/dL	12.0–16.0
Haematocrit	43.4	%	37.0–47.0
MCV	91.9	fL	80.0–97.0
MCH	32.2	Pg	26.0–34.0
MCHC	35	g/dl	31.0–36.0
RDW-SD	38.4	fL	39.0–52.0
RDW-CV	11.3	%	11.5–14.5
PLT	254	10*3/uL	140–440
PDW	12.1	fL	9.0–16.0
MPV	10.1	fL	7.0–12.0
P-LCR	27.3	%	19.0–47.0
PCT	0.26	%	0.12–0.36

Source: compilation based on authors' own research.

Discussion

We were unable to find any other studies that analysed the composition of breast milk in women following a LCD. The breast milk samples analysed in our study were collected at two different stages of lactation. Patient 1 had been breastfeeding her baby for over a year. In their study titled *Breast Milk Macronutrient Components in Prolonged Lactation*, Czosnykowska-Łukacka *et al.* [10] analysed the composition of breast milk during prolonged lactation in women on a standard diet. The results of the study for breast milk samples collected between the twelfth and eighteenth month of lactation are shown in Table 7.

Table 7. Macronutrient and energy content of breast milk during prolonged lactation [10, data from Table 2]

Breast Milk Macronutrient Content	Fat [g/dL]	Protein [g/dL]	Carbohydrate [g/dL]	Total solids [g/dL]	Energy [kcal/dL]	True protein [g/dL]
Months 12–18 n = 35	4.6	0.9	7.2	13.1	76	0.7

Compared to the results reported by Czosnykowska-Łukacka *et al.*, the breast milk samples collected from our patient 1 contained lower levels of fat (4.6 vs 2.7/2.9), fewer calories (76 vs 62/64) and higher levels of protein (0.9 vs 1.3) and carbohydrates (7.2 vs 7.9).

In the case of patient 2, the breast milk sample analysed was collected during the period of transitional milk production. The composition of breast milk at this stage of lactation in women on a standard diet was analysed by Ryoo and Kang [11]. The following table shows a summary of the results of that study.

Table 8. Composition of transitional milk [11, data from Table 2]

Macronutrient content of breast milk	Fat (g/dL)	Protein (g/dL)	Carbohydrate (g/dL)	Energy (kcal/dL)
Values	3.45 ± 1.28	1.32 ± 0.25	6.64 ± 0.27	63.18 ± 11.22

Compared to the results reported by Ryoo and Kang, the breast milk sample collected from our patient 2 had similar levels of fat (3.45 vs 3.5) and significantly higher protein levels (1.32 vs 1.9). Moreover, the breast milk sample collected from our patient had a higher carbohydrate content (6.64 vs 8.2) and contained more calories (63.18 vs 73).

In their study, Chang *et al.* [12] analysed the composition of human milk at different stages of lactation. We focused on the results reported by the authors relating to the composition of breast milk samples collected in the first week postpartum. A total of 246 such samples were analysed. The mean lipid content was 2.7 g/dL, the mean protein content was 2.2 g/dL, the mean lactose concentration was 7.0 g/dL and the mean energy content was 61 kcal/dL. Thus, compared with the breast milk samples analysed by Chang *et al.*, the breast milk sample collected from our patient 2 contained higher levels of fat (3.5 vs 2.7), more calories (73 vs 61) and lower protein levels (1.9 vs 2.2).

In their article, Osborne and Oliver [13] reported a case of a breastfeeding woman with ketoacidosis. The patient was eight weeks postpartum and was breastfeeding while on a KD. She developed dyspnea, chest pain and nausea and was unable to tolerate oral intake for several days. The

patient's laboratory tests showed ketoacidosis. After receiving appropriate pharmacological and dietary treatments, the patient made a full recovery.

Liu and Bertsch [14] reported a case of an eight-week postpartum woman who developed ketoacidosis. She presented to the hospital with nausea, vomiting, cough and rhinorrhoea. She was diagnosed with pneumonia and ketoacidosis. The patient reported following a KD to lose weight and was limiting carbohydrates to 25 g/day. She was treated with normal saline and antibiotics, received nutritional education and was discharged in good health.

Nnodum *et al.* [15] also reported a case of a breastfeeding woman with severe ketoacidosis. According to the authors, it was the first reported case of life-threatening ketoacidosis in the lactation period associated with the use of a KD while consuming an appropriate number of calories per day. The patient was twenty-four years old and was eighteen weeks postpartum. She presented to the emergency department with severe nausea and vomiting as well as several episodes of diarrhoea. She reported following a strict KD and was consistently tracking her macronutrient intake at an average of 2,200 kcal/day. The patient was treated with carbohydrates and dextrose and was discharged on day four of her hospital stay with close nephrological and primary care follow-up as well as symptom resolution. The follow-up laboratory tests performed for the patient after discharge remained normal.

Alkhayat *et al.* [16] reported a case of a thirty-seven-year-old breastfeeding woman, eight weeks postpartum, who was diagnosed with high anion gap metabolic acidosis.

Similarly, Gleeson *et al.* [17] reported a case of severe ketoacidosis in a thirty-one-year-old woman who was breastfeeding her ten-month-old baby. The patient was not following a LCD. The case report indicates that lactation placed a heavy burden on the breastfeeding mother. The patient's symptoms resolved completely after rehydration and energy replacement.

The two patients included in our study felt well during the study and all the tests performed on the patients indicated that they were in good health. However, their diets included an extra 500 kcal/day to meet the

energy demands of lactation. Neither of the patients reported that they were dieting to lose weight.

One important aspect to which Dressler *et al.* and Dressler and Trimmel-Schwahofer [18,19] and Le Pichon *et al.* [20] draw attention is the dietary treatment of infants with drug-resistant epilepsy. The authors acknowledge the benefits of breast milk and confirm that in children with drug-resistant epilepsy, breast milk can be incorporated into the children's LCD. It is worth noting that in the case of epilepsies of genetic origin [21], both the mother and the child may need to be treated with a KD. Thus, thanks to knowing the composition of breast milk in women following a KD, we are able to specify more precisely the amount of breast milk that a child with epilepsy can consume daily in addition to a specialist formula. The breast milk samples analysed in our study, which were collected from women following a LCD, contained higher protein levels compared with the protein content of breast milk in women on a standard diet.

Conclusions

The samples of breast milk collected from our patients following a low-carbohydrate diet contained higher protein levels.

Breastfeeding women are particularly at particular risk of the negative consequences of dietary mistakes due to the increased energy demand of lactation, stress and exhaustion from caring for a baby. Therefore, where a low-carbohydrate or ketogenic diet is to be introduced in a given patient, it is important to ensure that the diet is well-balanced and that the patient is under the care of a dietician.

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Chapter 3

Care of a patient with coronary artery disease: a case report

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DOI: 10.48269/978-83-67491-19-8-03

Abstract
Ischemic heart disease is a condition of ischemia in the coronary arteries of the heart, the most common cause of which (98% of cases) is atherosclerotic lesions. Although a great deal is known about ischemic heart disease, there is a constant need to update knowledge regarding treatment, prevention and the behaviour of nursing staff towards patients. This is because coronary heart disease, despite the fact that a lot is known about its pathomechanism and risk factors, still has high mortality rates.
Key words: ischemic heart disease, nursing care, nursing diagnosis

Introduction

The subject of this paper is the study of ischemic heart disease, using observation and care of an individual as an example. The disease can be defined as ischemic conditions in the coronary arteries, the most common cause (98% of cases) of which is atherosclerotic lesions. A consequence is myocardial hypoxia [1,2]. Atherosclerotic lesions are caused by a long-lasting inflammatory-immunological process that causes endothelial cell damage [3].

Coronary artery disease is responsible for 610,000 deaths per year, which means that one out of every four deaths is due to sequelae of the disease. It is the third most common cause of mortality worldwide, reaching 17.8 million deaths per year [4]. The course of coronary artery disease is gradual, the first symptoms may occur at age 40, while those aged 65 and older account for up to 85% of all deaths. There are about 550 million people worldwide living with cardiovascular disease, and this number continues to rise. The main factors for the increase are abnormal lifestyles, an aging population and improving survival rates after heart attacks and strokes. In terms of gender, there is a higher proportion of women (290 million [53%]) than men (260 million) [5].

The rationale for choosing the topic is insufficient knowledge of the role of the nurse in caring for coronary artery disease patients. It is also important to show the impact of holistic care on the patient's quality of life. Coronary artery disease, despite thorough understanding of its pathomechanism and risk factors, still achieves high statistics related to mortality. The main reason may be the lack of modifications during the patient's life and the low level of education regarding the disease itself. The role of the nurse in the care of a patient with coronary artery disease is crucial. The nurse, through her actions, should enable the patient to live with optimal quality. In addition, during the illness the nurse is an important person who can support the patient in three spheres, namely physical, mental and social.

Purpose of the study and research problems

The main objective of this study is to describe the care of a patient with ischemic heart disease. The research problems that emerge when caring for a patient with ischemic heart disease are:

1. What health problems occur in a patient with coronary heart disease?
2. What are the specifics of caring for a patient with coronary heart disease?
3. What is the role of the nurse in caring for a patient with coronary artery disease?
4. How does coronary artery disease affect the patient's psycho-social state?

The subject of the study of this paper is the diagnostic, therapeutic and nursing process of a patient with ischemic heart disease. The nursing model chosen and used in the study was Orem's model. The quintessence of this model is its focus on three key theories: self-care, its limitation and the nursing system itself. In her model, Orem propounded the theory that every person has an intrinsic need for self-care and a desire to maintain health from birth, and is self-aware of this. The nurse should first of all be able to notice the deficit and the resulting health problems of the patient. This will enable to fully provide proper care and also apply the optimal nursing system. Orem included three nursing systems in her model: fully compensatory, partially compensatory and supportive and educational. The case of caring and nursing a patient with coronary artery disease is a combination of the last two types. The argument behind the choice of the partially compensatory type is that the patient is clearly weakened, which translates into limited ability to perform certain activities as well as reduced motivation. The nurse's task is not to bail the patient out but to help the patient perform activities, as much as the patient's condition allows; their active participation in treatment procedures is important. The second system of nursing, on the other hand, aims to show support, to minimise the deficit in self-care [6]. As a result, the patient consciously performs activities that improve their

well-being. When the patient does not accept their illness, their system, is a key therapeutic factor. Through its use, the patient receives the support they need, showing patience, understanding consequently they feel comfortable and their willingness to mobilise increases.

Research methods, techniques and tools

The method used was the individual case method using the nursing process. The data collected, as well as information related to the patient's health condition, was obtained through the use of individual research techniques and tools. The key source of information was an interview with the patient. Observation was also used and a physical examination was conducted. The patient's medical history was also studied, highlighting laboratory and imaging results.

Research tools used:

- The numerical Scale (Visual Analog Scale, VAS) – used to assess pain intensity, zero means no pain and ten is unbearable pain.
- The Acceptance of Illness Scale (AIS) – used to assess the patient's acceptance of the disease. The scale contains eight statements whose answers are scored from one to five points. The maximum number of points is forty points. The higher the score obtained, the greater the patient's acceptance towards the disease and mental adaptation to the associated limitations [7].
- The Beck Depression Inventory – a scale for assessing the level of depression, contains twenty-one statements. The range of scores obtained is from zero to sixty-three points. The score obtained is not a diagnosis of depressive syndrome, but only a useful guideline when planning patient care [8].
- The Barthel Index is used to determine functional fitness, the ability to perform eleven activities of daily living. It takes into account the degree of independence of the patient. Group I is the range of points obtained from eighty-five to hundred and is an independent patient. Group II, on the other hand, refers to patients with a moderate range of lack of independence, twenty-one to eighty-four points. On the

other hand, if a patient scores zero to twenty points, he or she belongs to the group of patients with a high range of dependence [9].
- The Satisfaction with Life Scale (SWLS) is used to determine individual satisfaction with life, and consists of five statements that are rated on a seven-point scale. The score indicates the degree of satisfaction with one's life. The range of possible scores is from five to thirty-five points [10].
- The SCORE2 Scale determines the probability of death within ten years from cardiovascular causes [11].

A case report

A 81-year-old man was diagnosed with coronary artery disease in the Cardiology Department. The patient's condition was moderately severe, blood pressure 93/51, pulse 109/min, heart rate steady. The severity of pain on the VAS scale was 6, which means moderate pain. The patient exhibited effort tolerance with dyspnoea NYHA II. Blood samples were taken for laboratory tests. The laboratory tests showed individual abnormalities: CRP – 56.8 mg/l (normal <6.00), red blood cells – 4.18 T/l (4.50–6.50), haematocrit – 36.6% (40.00–54.00), troponin T – 20.10 pg/ml (<13.00). Electrocardiography was performed with twelve or more leads: intermediate axis, sinus rhythm regular 60/min, recording within normal limits. Coronary angiography revealed the presence of wall lesions in the LM, LAD, D1, Cx and OM, and the RCA was unobstructed and there was no restenosis in the sphere of implanted stents. The patient did not require revascularisation surgery. The treatment used was Effox long 50 mg, Prestarium 5 mg, Augmentin 1 g and Lacidofil. The patient was advised to remain under constant cardiological control. He also needed to have periodic follow-ups at the PCP with lab tests including CBC, creatinine, ionogram, lipid profile.

The patient currently complains that he is experiencing coronary pain and respiratory distress during exercise. This impedes his daily functioning. The patient is not a physically active person; he used to ride a bicycle before his diagnosis. The patient experiences fatigue due to sleep

problems, which results in lack of strength to undertake physical exertion. In his history, the patient admits to falls associated with the occurrence of dizziness and fainting. Because of this, the patient experiences anxiety. The patient describes his self-esteem as reduced, caused by limited independence, a sense of being a burden on his family. Low blood pressure values have been present for several months, resulting in headaches. The patient's family has reported that the patient is experiencing increasing cognitive impairment, which translates into worsening self-care. The patient's weight is 90 kg, height 171 cm. His BMI is 30.78, which indicates that he is overweight. The patient regularly passes stool and there is uncontrolled urination. The skin is grey, moist and cold. There are surgical wounds and the risk of bedsores is increased.

The patient also suffers from unstable angina, dyslipidaemia, gastric ulcer disease, prostatic proliferation, and was found to have bilateral hearing loss. A coronary angiography, PCI RCA with the placement of two DES stents was performed at the Cardiology Department.

Questionnaire results

- The VAS scale. The patient scored six points out of ten (range zero to ten), indicating a significant presence of pain. Discomfort is due to the presence of coronary pain.
- The AIS scale. The scale consists of eight statements regarding the patient's attitude toward the disease. The score obtained by the patient is twelve points out of forty points, which equates to non-acceptance of the disease. The patient was an active person before the exacerbation of the disease, although now he cannot perform activities involving increased physical exertion. He feels unnecessary and a burden to his family. The patient does not accept his illness to a high degree, and would like to return to his pre-disease state of health. He finds that the disease is impairing his quality of life.
- Beck Depression Inventory. The patient answered twenty-one questions whose individual answers are scored from zero to three points. He scored twenty-one points out of sixty-three, indicating the

possibility of moderate depression. The patient's history shows that he is experiencing a significant decrease in mood, prolonged fatigue and fear for his life.

– The Barthel Index is used to determine functional fitness, the ability to perform eleven activities of daily living. It takes into account the degree of independence of the patient. A group I patient scores between eighty-five and hundred points and such a patient is considered independent. Group II, on the other hand, refers to patients with a moderate range of lack of independence; these patients score between twenty-one and eighty-four points. Finally, if a patient scores zero to twenty points, he or she belongs to the group of patients with a high level of dependence [9].

Nursing diagnosis

Nursing diagnosis 1:
coronary pain due to inadequate oxygen supply to the myocardium manifested by burning pain behind the sternum [12]
Purpose of care:
to reduce the sensation of pain [12].
Nursing intervention plan [12]:

– assessment of pain with particular attention to pain characteristics, e.g., presence of throbbing, burning or pressure pain;
– determination of the intensity of pain experienced by the patient using the VAS analogue scale;
– checking laboratory results that have a significant impact on the patient's deterioration. Performing ECG, ST-T-segment evaluation to distinguish coronary artery disease from myocardial infarction, and other diagnostic tests ordered by the doctor, such as troponin determination;
– psychological and emotional support of the patient;
– administering nitro-glycerine for pain relief, be sure to take the drug at all times and follow the standards for storing the drug and the open package;

– monitoring the patient's basic vital signs during pain and after nitrate administration.

Justification for implementing nursing interventions:
the increase in blood pressure and heart rate due to stimulation of the sympathetic nervous system in pain, the use of nitrates can lead to hypotension. Nitro-glycerine tablets should be stored in a place protected from light, dryness and high temperatures, as the compound will be inactivated when exposed to light, moisture and heat. Shelf life should not exceed four months, as nitro-glycerine loses its therapeutic properties. The retentive tablet causes a slight tingling sensation when placed in the mouth. Nitro-glycerine causes vasodilation of blood vessels, which lead to a drop in blood pressure and which explains the appearance of dizziness, headaches or syncope [12].
Evaluation of care outcomes and nursing interventions undertaken:
the patient's pain improved slightly. The problem requires further observation.

Nursing diagnosis 2:
risk of myocardial infarction due to the presence of risk factors [12]
Purpose of care:
prepare the patient and family to modify risk factors [12].
Nursing intervention plan [12]: to schedule educational sessions regarding:

– blood pressure control – through weight loss, reducing salt intake, increasing physical activity through an exercise programme, use of prescription medications;
– hyperlipidaemia – reducing portion sizes of foods rich in saturated fatty acids and cholesterol, dietitian care and family involvement is recommended;
– risk of diabetes – the patient should control blood glucose levels and follow dietary and pharmacological recommendations;
– smoking – if the patient is unable to stop smoking on his/her own, s/he should consult a specialist.

Justification for implementing nursing interventions:
physical activity: lack of physical activity can lead to hyperlipidaemia/being overweight/obesity. Smoking causes vasoconstriction and myocardial hypoxia, doubling the risk of myocardial infarction. Dietary treatment of hyperlipidaemia can inhibit progression and cause at least partial regression of atherosclerosis, fats should be limited to no more than 30% of caloric intake, including cholesterol 300 mg/day [12,13].
Evaluation of care outcomes and nursing interventions undertaken:
no symptoms of myocardial infarction. The problem requires further observation.

Nursing diagnosis 3:
respiratory disorders associated with coronary heart disease manifested by dyspnoea during exercise [14,15]
Purpose of care:
to correct respiratory disorders, to ensure the safety and comfort of the patient, to prevent complications [15].
Nursing intervention plan [14,15]:
- measuring vital signs (temperature, pulse, saturation, blood pressure), assessing the patient's breathing cycle and track, auscultation, and tapping the patient;
- observing the patient for severe clinical signs, such as disorientation, lethargy, bradycardia;
- ensuring microclimate: temperature 18 to 22°C and humidity 60%;
- drawing blood for laboratory tests as ordered by the doctor;
- taking a medical history;
- if necessary, supplying oxygen;
- assisting the patient to assume and maintain an elevated position (Fowler).

Justification for implementing nursing interventions:
diagnosis of tachycardia above 100/min and tachypnoea-type dyspnoea above 24/min, body temperature above 38°C is an indication for further diagnostic imaging. Arterial blood gasometry, haematocrit, glucose, urea and sodium determinations are required. Hospitalisation is

an emotional experience for the patient, accompanied by great stress and loss of security. In addition, existing psychological burdens are exacerbated in elderly patients. Observe if the patient is experiencing severe clinical symptoms in order to be able to respond quickly if the patient's condition worsens. Administration of oxygen is necessary if the patient's body is hypoxic. Adopting a high position allows for comfort and facilitates breathing [14,15].
Evaluation of care outcomes and nursing interventions undertaken:
respiratory disorders decreased. The problem requires further observation.

Nursing diagnosis 4:
reduced exercise tolerance due to reduced coronary reserve manifested by dyspnoea during exercise [12,13]
Purpose of care:
improve exercise tolerance and increase physical activity, maintain balance between oxygen demand and supply [12,13].
Nursing intervention plan [12,13]:
- providing rest between specific activities, e.g., walking;
- prophylactic administration of nitro-glycerine before planned exercise, if required by the patient's condition;
- preparing a plan of action at home (performing household chores, planning specific times of the day, scheduling tasks for the week);
- reminding the patient not to perform activities that require holding a position with the hands raised above the level of the heart for an extended period of time;
- informing the patient of the need to continue drug therapy even if side effects occur;
- observing consciousness, the nature of breathing, skin colouring and behaviour;
- controlling saturation.

Justification for implementing nursing interventions:
the posture of the trunk above the level of the heart puts pressure on the heart muscle. Side effects of the medications used may include

headaches, a drop in blood pressure or fatigue, although often after a few weeks the body adapts to the treatment. The use of nitro-glycerine helps prevent angina attacks. Resting between certain activities (such as walking) is important because it allows the patient to rest and avoid overload. Prepare a plan to allow the patient to have a better quality of life and well-being. Monitor arterial blood oxygen saturation to determine if hypoxia is present. Limiting increased physical activity prevents exacerbation of the disease and its symptoms [12,13].
Evaluation of care outcomes and nursing interventions undertaken:
physical exercise tolerance has changed slightly. The problem requires further observation.

Nursing diagnosis 5:
decrease in blood pressure after administration of coronary vasodilators manifested by feeling unwell
Purpose of care:
prevention of drug-induced hypotonia [16].
Nursing intervention plan [16]:
- administration of medications according to the order sheet: observation of their therapeutic effect and side effects;
- controlling blood pressure-hypotonia can lead to impaired myocardial function and a decrease in cardiac minute volume;
- monitoring reported complaints: skin colouration, sweating, dizziness, weakness;
- instructing the patient to limit physical activity during periods of worse mood.

Justification for implementing nursing interventions:
observation of therapeutic and side effects allows the nurse to respond if adverse effects occur, such as changing the dose or discontinuing the drug. Monitoring blood pressure is necessary because hypotension leads to impaired myocardial function and reduced cardiac minute volume, which in turn results in whole body dysfunction. Monitoring these symptoms allows the nurse to identify any abnormalities in the patient's condition and take appropriate action. The patient's alertness is designed

to draw attention to the patient's deterioration, limiting physical activity can prevent fatigue and reduce the burden on the heart [16].
Evaluation of care outcomes and nursing interventions undertaken:
blood pressure measurements are normal. The problem requires further observation.

Nursing diagnosis 6:
risk of falling resulting from syncope and dizziness due to cerebral hypoxia
Purpose of care:
reduce the risk of falls [15].
Nursing intervention plan [15]:
- patient history: frequency and circumstances of falls, type of activity of the patient before the fall, state of consciousness and cognitive processes during the accident, medications used, functional fitness;
- performing measurements/tests, such as Performance of orthostatic test, Visual and auditory examination;
- improving the patient's sense of security and enhancing their functioning by discussing safeguards during activities of daily living, indicating the need for modification aimed at eliminating external factors that contributed to the fall, familiarising the patient with fall techniques to reduce injuries;
- creating therapeutic contact by showing acceptance, respect and patience;
- active listening.

Justification for implementing nursing interventions:
the selection of studies should be based on an analysis of interviews, history of falls, circumstances of falls, illnesses and symptoms occurring before, during and immediately after falls, as well as analysis of treatment used, with particular emphasis on the number of falls and medications taken.

Feeling safe is a fundamental part of preparing for self-care and reducing anxiety. Eliminating environmental factors contributes significantly to reducing the risk of falls. An important factor is the control of

anxiety on the basis of which "post-fall syndrome" develops, leading to restriction of motor activity [15].
Evaluation of care outcomes and nursing interventions undertaken:
the patient did not fall. The patient is assured of a sense of security.

Nursing diagnosis 7:
anxiety, fear for life resulting from angina complaints and current health manifesting itself in psychomotor restlessness [14,15]
Purpose of care:
to minimise fear and anxiety. Calming the patient [14,15].
Nursing intervention plan [14,15]:
- eliminating factors that exacerbate negative emotions (e.g. noise, rushing);
- staying with the patient frequently and encouraging the patient through empathy, respect, gaining the patient's trust, active listening, reinforcing the patient's self-image;
- informing the patient in the hospital setting about the activities performed, their sequence and the importance of treatment and care;
- answering the patient's questions within the scope of nursing competence;
- reassuring the patient and improving his/her functioning by recognizing the patient's main difficulties in adjusting to a new situation, facilitating the release of unpleasant emotions, accepting the patient's limitations and coping abilities, taking care to provide professional assistance, explaining the type, purpose and timing of necessary tests, diagnostic and laboratory tests.

Justification for implementing nursing interventions:
during contact with a patient experiencing anxiety, a transfer situation may occur. Therefore, it is important for the nurse, as well as members of the therapeutic team, to be aware of their feelings and emotions. Therapeutic contact can help manage the patient's anxiety and feelings of helplessness and affect the quality of the patient's experience. Relationships based on trust, empathy and taking the patient's concerns seriously are essential for a good therapeutic relationship [15].

Evaluation of care outcomes and nursing interventions undertaken:
the patient received support. The state of fear and anxiety has been reduced.

Nursing diagnosis 8:
long-term exhaustion caused by insomnia, manifested by feelings of lack of strength, headaches and deterioration of intellectual performance
Purpose of care:
eliminate symptoms of chronic fatigue.
Nursing intervention plan [15]:
- communicating with the patient, gaining the patient's trust, encouraging the patient to express emotions related to perceived concerns and symptoms of chronic fatigue;
- analysing the impact of chronic fatigue on the patient's health and functioning;
- collaboratively establishing an action plan leading to fatigue reduction: setting realistic, short-term goals, introducing time management techniques, collaborating with the therapist, educating the patient on healthy lifestyles, including nutrition, physical activity, proper amount and quality of sleep.

Justification for implementing nursing interventions:
communicating with patients and gaining their trust can help reduce anxiety and engage them. Basic psychotherapeutic communication should be part of a holistic approach to the patient and be based on interpersonal skills. Assessment of fatigue symptoms helps identify possible causes and chronic fatigue syndrome. Problem-solving oriented interventions lead to a reduction in the frequency of feelings of fatigue. The use of cognitive-behavioural therapy techniques helps patients understand the impact of thinking on their feelings and behaviour, which contributes to a positive impact on fatigue levels, work and adjustment. A well-balanced diet provides the body with the necessary nutrients to function properly. Fatigue, weakness and decreased energy can result from dietary errors [15].

Evaluation of care outcomes and nursing interventions undertaken:
the patient's well-being improved minimally. The feeling of fatigue and weakness was slightly reduced.

Nursing diagnosis 9:
decreased sense of satisfaction with life in the course of chronic disease (ischemic heart disease) manifested by decreased well-being
Purpose of care:
improve well-being and increase life satisfaction [15].
Nursing intervention plan [15]:
- assessment: patient's satisfaction with life, patient's health status, patient's social context, factors contributing to a decline in life satisfaction;
- empathic treatment of the patient, talking to the patient during illness;
- assessing the patient's knowledge of self-care;
- examples of supportive activities that promote the patient's self-image, such as acknowledging the patient's own thoughts, feelings, desires, behaviours, accepting the patient's strengths and weaknesses, successes and failures;
- providing emotional support to the patient to encourage him or her to take positive health-related actions;
- motivating the patient to engage in self-care and activity.

Justification for implementing nursing interventions:
assessment of life satisfaction and initial health and psychosocial status is the basis for effective action. It is necessary to identify factors that contribute to decreased life satisfaction. An empathetic approach facilitates a positive relationship with the patient, builds trust, and enables the patient's emotions and problems to be noticed. Knowing the patient's knowledge of the disease and care facilitates care planning and education. Self-esteem is very important in the self-care process, as it influences the implementation of health-promoting measures. Through research, it can be concluded that supporting the encouragement of patients to engage in self-care and treatment improves patients' self-efficacy

and satisfaction. Implementing the planned interventions and achieving positive outcomes is possible when patients are motivated [15].
Evaluation of care outcomes and nursing interventions undertaken:
the patient begins to feel greater satisfaction with life. The problem requires further observation.

Nursing diagnosis 10:
inadequate family preparation for patient care, resulting in undue burden on caregivers and disorganisation of family life
Purpose of care:
to prepare the family to care for a patient with coronary artery disease, reduce family discomfort caused by stress and improve family functioning [15].
Nursing interventions [15]:
impart knowledge to the patient's family regarding the essence of ischemic heart disease, its course and diagnosis, training the family in pharmacotherapy and rehabilitation, providing access to necessary medications and rehabilitation equipment, arranging regular visits by the doctor and other specialists to monitor the patient's condition, creating a safe home environment for the patient.
Justification for implementing nursing interventions:
information provided to family members about the nature of the disease is intended to make them aware of their role in the management of the coronary heart disease patient and to facilitate their role as informal caregiver. A safe mental and physical environment is a prerequisite for proper home care of the patient [15].
Evaluation of care outcomes and nursing interventions undertaken:
support was provided to the patient and his family. The family slowly implements the above-mentioned activities.

Conclusions

The following health problems/nursing diagnosis can be distinguished in a patient with coronary artery disease: the occurrence of coronary pain,

decreased exercise tolerance, the occurrence of shortness of breath during physical activity, feelings of prolonged fatigue, falls, fainting, anxiety, lack of satisfaction with life. The family additionally shows a lack of preparation for the patient's care.

A patient with coronary artery disease experiences fatigue and decreased exercise tolerance, which translates into difficulty in daily functioning.

Coronary artery disease negatively affects the patient's psychosocial state, the patient experiences anxiety and reduced satisfaction with life.

In the situation of the patient's knowledge deficit related to the therapeutic process, it is necessary to educate the patient, the main goal of which is to increase awareness, the patient's activity in the therapeutic process and reduce the feeling of anxiety.

The patient should be informed about the role of proper nutrition and the impact of risk factors on worsening the course of the disease.

The nurse's role in caring for a patient with coronary artery disease consists of several tasks: educating the patient, providing guidance supported by medical knowledge, help with self-care, and showing empathy, support and providing a sense of security.

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Chapter 4

Model of nursing care for a patient after thyroid cancer dissemination and metastasis of papillary and follicular thyroid carcinoma according to the International Classification for Nursing Practice (ICNP®)

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DOI: 10.48269/978-83-67491-19-8-04

Abstract

Thyroid cancer is a malignant neoplasm derived from the follicular cells of the thyroid gland, in addition to medullary carcinoma, which arises from neuroendocrine C cells. The last thirty years have seen a sharp increase in thyroid cancer cases.

The purpose of this study is to present a model of nursing care according to the International Classification for Nursing Practice (ICNP®) for a 77-year-old patient after thyroid cancer dissemination and metastasis of papillary and follicular carcinoma. The patient required a right parietal-occipital craniectomy and Grunenwald incision, excision of the lesion with resection of the trachea, with excision of the left internal jugular vein, plasty of both the left venous angle and the outlet of the lowest thyroid vein to the left brachiocephalic vein, as well as drainage of the left pleural cavity. Medical records, a patient interview, a patient

family interview, and assessment using scales were analysed: the VAS Scale, the life satisfaction scale and cancer adjustment questionnaire. The onset of cancer completely changes the functioning and life of the patient as well as of his/her family and loved ones, which is why family education and emotional support are so important. The ICNP® is a significant facilitator in the development of the nursing process and is also a facilitator of communication between nursing staff from around the world.
Key words: thyroid cancer, craniectomy, International Classification for Nursing Practice (ICNP)

Introduction

The onset of cancer completely changes the functioning and life of the patient as well as of his/her family and loved ones. Often such a diagnosis is perceived as a judgement beyond one's control. Like any chronic disease, cancer brings with it long-term effects that reduce the quality of life. It affects all dimensions of the patient's functioning, including the psychological dimension [1,2].

Thyroid cancer is a malignant neoplasm originating from the follicular cells of the thyroid gland, in addition to medullary carcinoma, which arises from neuroendocrine C cells. It is the most common malignancy of the endocrine system and causes 1% to 2% of all malignancies [3,4]. Papillary carcinomas account for more than 80% of all thyroid cancers, while about 10% are follicular [1]. Only 38% of thyroid carcinomas produce clinical symptoms, such as discomfort in the throat, a lump on the neck, difficulty swallowing, and occasionally coughing, change in voice, shortness of breath or symptoms associated with metastatic disease, which speak to further diagnosis [5]. The cause of thyroid cancer is primarily related to radiation exposure, iodine intake, diabetes, obesity, Hashimoto's thyroiditis, use of exogenous estrogens and dietary choices [6,7].

Papillary thyroid carcinomas are a heterogeneous group of neoplasms, in which variants characterised by a more aggressive course can be distinguished [5]. It is the most common endocrine neoplasm, accounting for 80% to 90% of cancers, and the incidence is steadily increasing [6]. Patients often have no symptoms except hoarseness, enlarged lymph nodes and swallowing disorders [8].

Follicular carcinoma is made of cells with low atypia that form follicles. Thus, it mimics the structure of the thyroid gland. It is the second most common type of thyroid cancer right after papillary carcinoma and accounts for 10% of differentiated thyroid cancers [6,9].

The first diagnostic step that determines the indications for deepening the diagnosis with ultrasonography in a patient with suspected focal thyroid lesions is the physical examination of the subject. A family history of papillary or follicular carcinoma increases a patient's risk of developing the disease several-fold. In the early stages, the cancer may not be palpable [9,10].

BAC, or fine-needle aspiration biopsy, is an examination for which the primary indication is focal thyroid lesions, i.e. a nodule palpable by palpation or visible on ultrasound. Ultrasound plays a primary role in the imaging diagnosis of thyroid cancer at this time. Ultrasound evaluation is a non-invasive method, widely available and inexpensive, and allows an initial assessment of the risk of the presence of an invasive lesion. CT and MRI scans are performed in patients with locally advanced disease or suspected distant metastases [5,11].

Thyroid cancer is a cancer found in the thyroid gland, and much effort has been put into improving its diagnosis, while thyroidectomy remains the primary method of treatment. The basis of surgery is to distinguish between benign and malignant thyroid nodules. Accurate diagnosis promotes efficient surgery, avoids unnecessary side effects and reduces the risk of recurrence. It also helps in the selection of comprehensive postoperative nodes of the mistreatment. Therefore, it is so important and crucial to make accurate diagnoses and prognoses of the lymph on the basis of diagnostic tests [12,13]. Surgical treatment of thyroid cancer involves complete, extracapsular removal of the thyroid gland supplemented by excision of the lymph nodes of the middle compartment of the neck, and, if nodal metastases are present, also excision of the lymph nodes of the lateral compartments of the neck.

The decision for surgical treatment should be made with great prudence. It must be preceded by a discussion with the patient, as well

as a thorough explanation of all the reasons for carrying out the operation and the possible consequences of not doing so [2].

In general, follicular, and papillary carcinomas retain the ability to uptake iodine. Radioactive iodine treatment is optimally carried out >4 weeks and usually <3 months after thyroid resection; however, therapy less than three months after surgery is sufficient treatment, while only when the period exceeds nine to twelve months after surgery is treatment estimated to be delayed. The basis for the introduction of treatment is adequate TSH stimulation, defined as TSH levels >30 mlU/l. TSH stimulation can be achieved by a four- to six-week interruption of L-thyroxine intake. Then hypothyroidism develops, the symptoms of which significantly impair the patient's quality of life, and in the case of co-morbidities such as diabetes, ischemic heart disease, epilepsy or depression, their symptoms can be dangerously exacerbated. In the three months before the scheduled date of radioiodine treatment, iodine-containing preparations should be avoided and examinations with iodine contrast agent should not be performed [6,14].

A case report

A 77-year-old patient was referred to the hospital with a diagnosis of thyroid nodular goiter based on histopathological examination. The patient was treated surgically, involving total resection of the thyroid gland. The operation proceeded without complications, and the patient was discharged home on the second postoperative day in good general condition. The patient received histopathological results, revealing that the lesion was non-neoplastic. The patient systematically reported for medical check-ups and maintained a healthy lifestyle. In 2021, the patient presented to the Clinical Department of Neurosurgery and Neurotraumatology with the goal of removing a tumour from the right parietal-occipital bone. Surgery under general anaesthesia involving right parietal-occipital craniectomy was performed. A bone tumour of the right parietal-occipital region infiltrating the dura was removed. Histopathological examination revealed the follicular variant of

papillary carcinoma. The patient was discharged home in good general condition.

Parameters and tests upon admission to the hospital: before surgery, an MRI revealed a pathological mass measuring approximately 50 × 20 × 45 mm in the occipital bone on the right side.

CT scan of the head (brain) without intravenous contrast, along with a secondary study, identified a brain tumour.

Soft tissue ultrasound of the right parietal-occipital region showed a prominent heterogeneous hypoechoic lesion at the location of the palpable tumour.

Following surgery and patient mobilisation, an additional CT scan of the head was performed, indicating no need for urgent intervention. The scan revealed a visible fluid reservoir measuring 19 mm in thickness.

In August 2021, the patient was admitted to hospital to the Clinical Department of Thoracic and Oncologic Surgery department with a rehabilitation subdivision for evaluation of possible qualification for surgical treatment due to the diagnosis of the recurrence of papillary thyroid carcinoma.

The patient had a history of complete thyroid removal due to nodular goiter, chronic renal failure, bronchial asthma, hypertension, hypercholesterolaemia, obesity, and lower extremity varicose veins. An Angio-CT of the cephalic arteries was performed on the patient, which showed a polycystic infiltrate on the left side of the larynx and trachea measuring 65 × 36 mm extending 70 mm. A MRI of the neck with contrast was also performed, which showed suspected recurrence of thyroid cancer and a packet of enlarged lymph nodes. In September 2021, the patient underwent surgery under general anesthaesia: Grunenwald incision, excision of the lesion with resection of the trachea, with excision of the left internal jugular vein, plication of the left venous angle and plication of the outlet of the lowest thyroid vein to the left brachiocephalic vein and drainage of the left pleural cavity.

The patient felt debilitated after the procedure and was transfused with blood cells due to anaemia. The patient ate food orally, had a diabetic diet and experienced pain at two to three points according to the NRS Scale.

She was then transferred to the Department of Thoracic Surgery, where another 3j of CRC was transfused. A bronchoscopic examination was performed, which showed that the trachea was healing properly, the laryngeal oedema had resolved. The patient was discharged home in good general condition. In November 2021, the patient was admitted to the Department of Oncological Endocrinology and Nuclear Medicine for complementary treatment with I-131 under rhTSH stimulation. The histopathological examination at the request of the family, which was performed in 2014, was reconsidered, and the repeat examination showed that there were two types of cancer: follicular and papillary.

The patient was given two doses of Thyrogen on the first and second days of hospitalisation, then on the third day the patient received 3657 MBq of radioiodine I-131. Nausea and worsening of appetite without vomiting occurred: emergency antiemetics were administered with a positive result. At the end of hospitalisation, the patient was advised to undergo whole-body scintigraphy, a follow-up at the Outpatient Clinic, and control of renal parameters, fasting glucose, diagnosis of anaemia and consumption of at least 1.5l of fluids per day. After I-131 treatment, there was postoperative wound pain. After the radioiodine treatment, the patient developed painful ulcers in the nasal area and a lowered mood during the procedure due to loneliness. In May 2023, the last (fourth) treatment with radioactive iodine was planned. In 2022, stereotactic radiotherapy of the metastatic area of the right rib 3 was performed on a linear gas pedal. A total dose of 1,500 cGy in one fraction with a photon beam was administered. After completion of radiation therapy, Pharmaceris X cream was applied to the irradiated skin. The patient underwent five treatments with radioactive iodine at six-month intervals.

Nursing diagnosis

Diagnosis 1. Endocrine system dysfunction [10022965]
Client: patient
Date added: 30.04.2023
Goal: effective function of the endocrine system [10028037]

Interventions:
- blood pressure monitoring [10032052]
- monitoring blood oxygen saturation with a pulse oximeter [10032047]
- body weight monitoring [10032121]
- monitoring body temperature [10012165]
- monitoring response to treatment [10032109]
- administering the drug [10025444]
- providing a schedule for drug administration [10043185]
- managing drug side effects [10021837]
- evaluation of endocrine status [10033998]

Evaluation: positive; effective endocrine status [10033713]

Diagnosis 2. Radiation therapy [10016293], risk of radiation injury [10046449], skin pain [10005470]
Client: patient
Date added: 30.04.2023
Goal: no radiation injury [10033637]
Interventions:
- blood pressure monitoring [10032052]
- venous blood sampling [10044633]
- administering medication [10025444]
- pain control [10025831]
- pain monitoring [10038929]
- skin care [10032757]
- patient counselling [10031062]
- accompanying the patient [10042613]
- emotional support [10027022]
- teaching about wound dressing changes [10045149]
- reporting [10016771]

Evaluation: positive; no pain [10029012], no injury [10028978], no radiation injury [10033637]

Diagnosis 3. Musculoskeletal pain [10012337]
Client: patient

Date added: 30.04.2023
Goal: pain-free [10029008]
Interventions:
– administration of pain medication [10023084]
– adherence to rehabilitation regimen [10033869]
– teaching about pain [10039115]
– assessing pain control [10002710]
– assessing symptom control [10026161]
– assessing risk of negative drug interaction [10045940]
– reporting [10016771]
Evaluation: positive; no pain [10029008]

Diagnosis 4. Impaired mobility [10001005], impaired walking [10001046]
Client: patient
Date added: 30.04.2023
Goal: Ability to move [10000204], walking with devices [10020903]
Interventions:
– promoting walking with device [10037636]
– assisting walking with device [10036520]
– promoting physical mobility [10037379]
– assessing walking ability [10038917]
– teaching about ways to increase physical activity tolerance [10024660]
– teaching about how to increase tolerance of physical activity [10024660]
Evaluation: positive; walking with devices [10020903], activity performed independently [10017805]

Diagnosis 5. Fall risk [10015122], injury risk [10015146]
Client: patient
Date added: 30.04.2023
Goal: no fall injury [10038545], no fall [10034704], no injury [10028966]
Interventions:
– monitoring fall risk [10037442]
– assessing fall prevention knowledge [10039780]
– demonstrating fall prevention methods [10040248]
– teaching families about fall prevention [10040269]

– assessing falls risk [10023520]
– providing a supportive device [10037367]
– teaching about home safety [10032960]
– assisting with walking [10038986]
– promoting walking with the device [10037636]
– promoting adherence to an exercise regimen [10041628]
– teaching about rehabilitation [10033017]

Evaluation: positive; no fall injury [10038545], no fall [10034704], no injury [10028966]

Diagnosis 6. Peripheral oedema [10027482], altered blood pressure [1002295]
Client: patient
Date added: 30.04.2023
Goal: no peripheral oedema [10029020], blood pressure within normal range [10027647]
Interventions:

– blood pressure monitoring [10032052]
– monitoring blood oxygen saturation with a pulse oximeter [10032047]
– fluid balance monitoring [10040852]
– cardiac status monitoring [10034285]
– body weight monitoring [10032121]
– monitoring fluid excretion [10035319]
– medication administration [10025444]
– skin assessment [10041126]
– skin care [10032757]
– teaching self-care [10045014]

Evaluation: positive; blood pressure within normal limits [10027647]

Diagnosis 7. Wound [10021178], delayed recovery after surgery [10037403]
Client: patient
Date added: 30.04.2023
Goal: recovery after surgery [10028691]

Interventions:
- antibiotic administration [10030383]
- adherence to medication regimen [10030354]
- adherence to rehabilitation regimen [10033869]
- monitoring physical signs and symptoms of infection [10031592]
- monitoring wound healing [10042936]
- assessing the wound [10030799]
- assessing wound care knowledge [10046598]
- assessing wound healing knowledge [10046607]
- wound care [10033347]
- changing a dressing on a wound [10045131]
- controlling pain [10025831]
- providing a medication schedule [10043185]
- providing emotional support [10027051]

Evaluation: positive; recovery [10019249]

Diagnosis 8. Risk of depressive mood [10032329], sadness [10017418], grief [10022345]
Client: patient
Date added: 30.04.2023
Goal: reduced depressive mood [10027901]
Interventions:
- assessing emotional support [10030589]
- assessing depressive mood [10026055]
- assessing attitudes toward illness [10024192]
- promoting hope [10024440]
- providing emotional support [10027051]
- managing negative emotions [10031851]

Evaluation: negative: depressive mood [10005784]

Diagnosis 9. Obesity [10013457], overweight [10027300], risk of disordered eating [10023013]
Client: patient
Date added: 30.04.2023

Goal: effective weight [10027392]
Interventions:
– monitoring body weight [10032121]
– assessing diet adherence [10044481]
– interacting with dietitian [10040435]
– teaching about dietary needs [10046533]
– monitoring nutrition [10036032]
– assessing dietary need [10037875]
– assessing attitudes toward nutritional status [10002694]
– assessing risk of impaired nutritional status [10040921]
Evaluation: negative; disordered eating [10025535], overweight [10027300]

Diagnosis 10. Disturbed sleep [10027226], night terrors [10013211]
Client: patient
Date added: 30.04.2023
Goal: adequate sleep [10014939]
Interventions:
– teaching relaxation techniques [10038699]
– demonstrating relaxation techniques [10024365]
– identifying psychological status [10044241]
– providing emotional support [10027051]
– administering medication [10025444]
– teaching stress management [10038681]
– teaching breathing techniques [10039213]
– assessing sleep [10036764]
– assessing psychological status [10030734]
– teaching about adaptive techniques [10023717]
Evaluation: positive; adequate sleep [10024930]

Diagnosis 11. Nausea [10012453]
Client: patient
Date added: 30.04.2023
Goal: nausea-free [10028984]

Interventions:
- medication administration [10025444]
- assessing nausea [10043694]
- teaching about nausea management [10043687]
- managing nausea [10043673]
- pain control [10025831]

Evaluation: positive; no nausea [10028984]

Diagnosis 12. Heartburn [10043298]
Goal: effective regulatory system process [10033491]
Client: patient
Added: 30.04.2023
Intervention:
- medication administration [10025444]
- nutrition monitoring [10036032]
- teaching about the drug [10019470]
- teaching about dietary needs [10046533]
- managing the dietary regimen [10023861]
- interacting with diet regime [10026190]

Evaluation: positive; positive digestive system process [10028016]

Diagnosis 13. Fatigue [10007717], weakness [10022880], dizziness [10006160]
Client: patient
Date added: 30.04.2023
Goal: no dizziness [10045681], no fatigue [10034727]
Interventions:
- assessing dizziness [10045917]
- assessing fatigue [10026086]
- use of a safety device [10002472]
- administering pain medication [10023084]
- nurse-led monitoring of risk of negative pain response [10039896]
- drug response evaluation [10007182]

– support [10019142]

Evaluation: positive; no dizziness [10045681], no fatigue [10034727]

Diagnosis 14. Risk of dissatisfaction with health care [10040899], lack of trust [10025947]

Client: patient

Date added: 30.04.2023

Goal: trust [10025934], healthcare satisfaction [10040092]

Interventions:

– establishing trust [10024396]
– facilitating communication of needs [10038196]
– providing continuity of care [10006966]
– providing emotional support [10027051]
– promoting health-promoting behaviours [10032465]
– managing anxiety [10031711]
– managing negative emotions [10031851]
– evaluating satisfaction with health care [10040490]

Evaluation: negative; lack of confidence [10025947], frustration [10008252]

Summary

Based on the model of individual nursing care, nursing diagnoses were made and goals and nursing interventions were determined, which latter were aimed at recognising the patient's main health problems and deficits. It was then determined how to solve them, so that the patient would have the greatest possible freedom and independence during her recovery. The nursing process developed was based on the model of care according to the ICNP® (International Classification for Nursing Practice).

The patient's knowledge deficit on healthy diet, disease and care was attempted to be resolved through effective patient and family education, support and motivation. The patient's education emphasised the need to implement an appropriate diet and provided extensive information

on healthy eating and weight monitoring, post-operative wound care and dressing changes. Support was provided for sleep disorders and relaxation techniques to help sleep were demonstrated. An opportunity to speak with a nutritionist and a psychologist was also provided. The patient's family was willing to cooperate and support the patient in the further stages of her illness.

This case shows how crucial and important a role for the patient is played both by the nurse in the process of treatment and recovery and the patient's trust in the medical staff. The role of the nurse in the perioperative and postoperative care of the patient is extremely important. It is the nurse who prepares the patient for surgery, takes an active part in pharmacotherapy, nursing and rehabilitation, surrounds the patient with care and helps the patient adapt to the hospital environment. The nurse is also that person among the members of the therapeutic team whose attitude, behaviour and way of communicating with the patient can influence the minimisation of anxiety and reduction of postoperative stress.

Conclusions

The patient's deficits were determined in terms of knowledge about the disease, healthy eating, and care.

The patient received medical, psychological and educational support.

The nursing staff made accurate nursing diagnoses, identified appropriate goals and interventions whose implementation was aimed at improving the patient's quality of life.

The ICNP® is a significant aid in the development of the nursing process, as well as a facilitator of communication between nursing staff from around the world.

The onset of cancer completely changes the functioning and life of the patient as well as of his/her family and loved ones, which is why family education and emotional support are so important.

An extremely important element in cancer is also correct medical diagnosis and selection of treatment.

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Chapter 5

Model of care for patients with relapsing-remitting multiple sclerosis in terms of the International Classification for Nursing Practice (ICNP®)

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DOI: 10.48269/978-83-67491-19-8-05

Abstract
The relapsing-remitting form of multiple sclerosis (MS) dominates among patients diagnosed with this disease. The relapse time often requires inpatient care due to the need to implement specialist diagnostic and therapeutic procedures. The neurological deficit accompanying the relapse period determines differentiated health problems, and their resolution will be facilitated by the use of the indications present in the model of care. The traditional language and structure of the model has been replaced by the terminology of the ICNP®.
Key words: multiple sclerosis, relapse, model of care, ICNP®

Introduction

Every year multiple sclerosis (MS; Latin: *sclerosis multiplex*) is diagnosed in between 1,300 and 2,100 people in Poland, while the total number of people suffering from the disease is currently estimated at around 55,000 [1,2]. Most frequently (in around 90% of cases) MS is of a relapsing-remitting nature (RRMS, relapsing-remitting multiple sclerosis). A relapse is a clinical occurrence characterised by various symptoms of damage to the CNS (central nervous system). Its spectrum may be either random or conditioned by previously occupied structures of this system. A relapse is determined not only by the type of symptoms but also by how long they persist, which must be longer than twenty-four hours, and at least one month must have passed since the last relapse [3,4]. On the basis of previous observations, risk factors for the exacerbation of MS have been identified, including hormone imbalances linked to the postpartum period, viral infections and stressful situations [5].

A patient with a moderate or serious relapse is hospitalised because of the necessity to repeat diagnostic procedures and begin treatment whose purpose is to eliminate the active inflammatory state of the CNS [6]. Planning patient care is facilitated by a care model, which represents a theoretical framework for guiding decisions in a specific clinical situation. This model is made up of three elements, i.e. a nursing diagnosis/health problem, the aim of the care and a plan of action/nursing interventions [7].

The ICNP® (International Classification for Nursing Practice) is a tool in the form of a ready-made electronic taxonomy which provides standardised terminology (together with digital codes) for the purposes of classifying states that a nurse can recognise in a specific care recipient, as well as planned actions and actions undertaken in order to obtain care outcomes. The reference terminology is listed in a dictionary that contains terms that describe the tasks performed by nurses in the form of the ICNP®. The terms are classified along seven main axes (Client, Judgement, Focus, Time, Location, Means and Action). The axis structure of the classification allows a detailed diagnosis to be made by choosing the terms from these axes. The diagnosis catalogues are constructed according to

coherent guidelines. The phrases that name the diagnoses, nursing interventions and outcomes are created according to ISO standards. A nursing diagnosis is required to contain a term from the 'Focus' axis and one from the 'Judgement' axis. A nursing intervention is required to contain a term from the 'Action' axis and at least one that identifies the purpose from an axis other than the 'Judgement' axis [8,9]. Considering the diversity and dynamics of the symptoms of MS, the material presented in this study is an attempt to develop a care model for the relapsing-remitting form of MS within the framework of the ICNP®. In addition to the literature review, it features a case study.

Case study

The patient L.K., who is 39 years old, has been treated for relapsing-remitting MS for seventeen years. During this time he has been hospitalised four times due to relapses of the underlying disease. The last relapse before his current stay in hospital was four years ago. The patient has been taking Avonex 30 μg intramuscularly once a week for two years. The reason for his current, fifth, hospitalisation was a notable deterioration in his neurological condition. In the opinion of the patient some of symptoms of this deterioration were present several days before he was admitted to hospital (i.e. difficulties passing urine, migraines, blurred vision, increasing fatigue). Others, i.e. dizziness, sensory disturbances such as a tingling sensation in the left-hand side of the face, left-sided muscle weakness, slurred and unclear speech as well as difficulties swallowing food and with fluid intake, which manifest itself in a feeling of choking and the presence of coughing, appeared on the day of hospital admission or immediately prior to it. The patient is capable of performing hygiene tasks independently, such as toileting and shaving, changing his underwear, but he needs help in covering longer distances and uses a stick for this. The neurological tests performed since he was admitted have revealed the presence of superficial sensory disturbances in the lower limbs, nystagmus, and increased tension in the paraspinal muscles.

During his current hospitalisation the patient has undergone certain diagnostic procedures, such as an MRA of the head, cerebrospinal fluid analysis, ophthalmological and laryngological examination and an ultrasound of the urinary bladder. The MRA examination revealed the presence of active degenerative changes in the brain and a process of demyelination. The ultrasound image indicated urine retention in the urinary bladder. The procedure for examining cerebrospinal fluid was associated with post-lumbar puncture headache, which the patient developed in the evening of the day of the examination and manifested itself in nausea and dizziness.

Analysing the patient's condition at the time of the examination, that is over the course of four days, a slight change in the patient's functional status was observed, that is, how he moves about (initially in a wheelchair, later he could move around without the aid of a stick or the assistance of a nurse). Meals were given to the patient orally, although coughing appeared while he was eating. Due to the persistent difficulties in passing urine, a Foley catheter was fitted to the patient's bladder. On the fourth day of the patient's stay, rehabilitation and a consultation with a speech therapist were scheduled. His mood was stable.

During this period the patient's general condition was good and stable. The vital signs were as follows: arterial blood pressure: from 130/80 to 120/80 mmHg, pulse from 65 to 75 beats per minute, saturation (SPO2) 96% and body temperature 36.6°C. A somatic problem reported by the patient was headache, which upon admission was assessed at five points on the NRS along with lower back pain. Pharmacological treatment included methylprednisolone (Solu-Medrol 500 mg intravenously once a day), Nilogrin 10 mg (by mouth three times a day), Neiraxin B 2 ml (intramuscularly once a day), Naproxen 250 mg (by mouth three times a day), Baclofen 25 mg (by mouth three times a day), and Mexifin 100 mg (intramuscularly once a day). The patient is married, has two children and does not work.

Nursing diagnoses [8]

Diagnosis 1. Self-care deficit [10023410]

Interventions (IC)	Actions (A)	Means (M)
assessing self-care [10021844] + assessing needs [10033368] + care planning [10035915]	observing [10013474] interview [10010542] assessing [10002673]	assessment tool [10002832]: Barthel Index nurse [10013333] care plan [10003970]
assisting with self-care [10035763] + implementing a safety regimen [100036565]	assisting with hygiene [10030821] washing [10020935] skin care [10032757] perineal care [10045154] oral care [10032184] positioning patient [10014761] dressing and undressing [10008425] feeding [10007786] ensuring continuity of care [10006966]	dressing [10002589] bathing device [10003147] nurse [10013333]

Diagnosis 2. Impaired mobility [10001005] + risk of fall [10015122] + risk of injury [10015146]

Interventions (IC)	Actions (A)	Means (M)
assessing mobility [10030527] + assessing risk for falls [10023520] + assessing risk for transfer injury [10030723] + care planning [10035915]	checking [10005142] monitoring [10012154] observation [10013474] documenting [10006173]	nurse [10013333] assessment tool [10002832]
assisting with mobility [10036508] + implementing a safety regimen [100036565]	assisting [10002850] mobility [10020030] supervising [10019093] observation [10013806]	nurse [10013333] walking stick [10020893] wheelchair [10021052]
collaborating with interprofessional team [10039416]	conversation [10019436] consulting [10005017] reporting [10016771]	nurse [10013333] multidisciplinary team [10039400]

Diagnosis 3. Impaired communication [10023570] + unclear speech [10018304] + patient [10014132]

Interventions (IC)	Actions (A)	Means (M)
assessing ability to communicate by talking [10030515]	checking [10005142] monitoring [10012154] observation [10013474] documenting [10006173]	nurse [10013333]
identifying obstruction to communication [10009683]	analysing [10002298] checking [10005142] planning [10014648]	nurse [10013333] plan [10014630]
forming relationships [10016678]	listening [10011383] providing company [10015575] supporting [10019142]	nurse [10013333]
collaborating with interprofessional team [10039416]	conversation [10019436] consulting [10005017] reporting [10016771]	nurse [10013333] multidisciplinary team [10039400]

Diagnosis 4. Impaired swallowing [10001033]

Interventions (IC)	Actions (A)	Means (M)
assessing swallowing [10050155]	checking [10005142] monitoring [10012154] observation [10013474] documenting [10006173]	assessment tool [10002832]: eat nurse [10013333] carer [10003958]
teaching about eating pattern [10032918]	educating [10006230] teaching [10019502] responding [10017004] supporting [10019142]	nurse [10013333] swallowing technique [10019352]
monitoring food intake [10036614] + implementing a safety regimen [100036565]	checking [10005142] monitoring [10012154] supervising [10019093] observation [10013474] documenting [10006173]	nurse [10013333] carer [10003958]

Diagnosis 5. Impairments of active range of motion [10040173] + paresis [10014075] + joint contracture [10010978] + skeletomuscular pain [10012337]

Interventions (IC)	Actions (A)	Means (M)
identifying physiological status [10009612]	observation [10013474] assessing [10002673]	assessment tool [10002832]
positioning patient [10014761]	positioning [10014575]	positioning technique [10014774] nurse [10013333]
collaborating with interprofessional team [10039416]	conversation [10019436] consulting [10005017] reporting [10016771]	nurse [10013333] multidisciplinary team [10039400]

Diagnosis 6. Urinary dysfunction [10021790] + risk of infection [10015133]

Interventions (IC)	Actions (A)	Means (M)
managing urinary incontinence [10031879] + using bladder training technique [10045219]	observation [10013474] assessing urinary continence [10030781] teaching about managing urinary incontinence [10045261]	bladder training technique [10009957] nurse [10013333]
managing urinary catheter [10031977] + urinary catheter care [10033277]	promoting hygiene [10032477] assisting with hygiene [10030821] maintaining dignity and privacy [10011527]	nurse [10013333]
prevention of infection [10036916]	symptom control [10025812] collaborating with physician [10023565]	nurse [10013333]

Diagnosis 7. Risk for medication side effect [10037604]

Interventions (IC)	Actions (A)	Means (M)
monitoring [10012154]	measuring blood pressure [10031996] measuring heart rate [10036826] measuring blood glucose [10041212] monitoring fluid balance [10040852] observation [10013474] documenting [10006173]	assessment tool [10002832]: Glucose meter + CT scanner + fluid balance chart + nurse [10013333]
checking symptoms [10025820]	conversation [10019436] observsation [10013474] assessing [10002673] documenting [10006173]	nurse [10013333]

Interventions (IC)	Actions (A)	Means (M)
administering medication [10025444]	monitoring medication side effects [10043884] assessing risk for adverse medication interaction [10045940] medication handling [10040708] providing medication schedule [10043185]	medication administration technique [10006322] medication [10011866] drip [10006295] medication schedule [10043171] intravenous cannula [10020677] nurse [10013333] physician [10014522] medication [10011866] nurse [10013333]
collaboration with a multidisciplinary and interdisciplinary team [10039416]	conversation [10019436] consulting [10005017] reporting [10016771]	nurse [10013333] multidisciplinary team [10039400]

Summary

A period of relapse in an MS patient is accompanied by many health problems, including impaired verbal communication and a self-care deficit in food and fluid intake, mobility, the risk of complications caused by altered muscle tone and sensing pain. The recommended pharmacological treatment (intravenous steroid therapy) is also associated with adverse effects of the drug, such as swelling, a transient increase in blood pressure and gastrointestinal disturbances, including bleeding from the gastrointestinal tract, psychological disorders, namely anxiety, mood swings and insomnia [10]. The care model can be defined as a pattern for how one should proceed when performing specific tasks [7]. This model pertained to the exacerbation period in RRMS. The critical analysis of ICNP® in the clinical situation described in this chapter indicates that terminology essential to plan a course of action, or measures appropriate for it, does not exhaust the specifics of care for a patient with RRMS. Terminological gaps should therefore be gradually filled in by a team of professionals, to ensure that the catalogue of diagnoses becomes a tool to be applied to every area of nursing. In order to address

the deficit in nursing terminology the authors of this chapter are planning to take further action by mapping it and conducting an assessment. This type of work has already been undertaken by specialists from other areas of nursing [11].

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Chapter 6

Model of care for a patient with amyotrophic lateral sclerosis (ALS) according to the International Classification for Nursing Practice (ICNP®)

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DOI: 10.48269/978-83-67491-19-8-06

Abstract

Amyotrophic lateral sclerosis (ALS) is one of the most serious neurodegenerative diseases. It is a primary degenerative disease of the nervous system with a progressive course. ALS is a disease of unknown aetiology. For patients and families, the greatest cruelty of this disease is the fact that as it progresses, muscle atrophy and paresis occur. In the advanced stage, the sufferer is completely immobilised, unable to move despite full mental capacity and awareness. Although the disease is incurable, many of its symptoms can be alleviated, and the goal of therapy should be to improve the quality of life and maintain the patient's independence for as long as possible.

The aim of this study is to develop a model of care for a patient with ALS using the International Classification for Nursing Practice (ICNP®).

The study is based on an individual case study of a patient with ALS. Information for the development of the nursing model was collected on the basis of an interview with the patient and her family, observation of the patient, analysis

of medical documentation (patient's medical history, individual patient's order card), laboratory test results, assessment using scales (ALSFRS-R Scale, Barthel Index, Norton Scale), and measurements (blood pressure, pulse, temperature, and saturation). According to the model of individual nursing care, nursing diagnoses were made in accordance with the assumptions of the ICNP®, goals of care, planned nursing interventions and assessment of nursing care. This chapter aims to recognise the main health problems faced by the patient and her family. The nursing actions taken facilitated the care of the patient and improved the quality of her life that of her family.
Key words: amyotrophic lateral sclerosis (ALS), mechanical ventilation, model of care, ICNP®

Introduction

Amyotrophic lateral sclerosis (ALS) is an incurable progressive disease that leads to loss of muscle control. It belongs to the group of motor neuron diseases of unknown aetiology [1,2]. Its pathological process involves both the upper motor neurons (the motor cortex neurons) and peripheral motor neurons, including the alpha motor neurons of the ventral horns of the spinal cord as well as the nucleus of the brain stem. It results in progressive paresis, in various configurations, of the skeletal muscles, particularly the respiratory ones and those of the limbs, throat and larynx [1]. The onset of muscle weakness in ALS is typically focal and spreads to adjacent areas of the body. This is true of the spread of the disease within both the musculoskeletal system and segments of the spinal cord and the motor cortex. The disease typically presents through unilateral weakening of the distal muscles and atrophy of the muscles of the upper or lower limbs (spinal-onset ALS) or of the opponens pollicis. The disease gradually spreads to other anatomical regions. Its onset in the limbs is usually of an asymmetrical nature, affecting more often the upper limbs. It typically begins in the distal segment of the limb and causes atrophy of the small muscles of the hand. More rarely, atrophy affects the proximal muscles of the upper limbs [3]. ALS whose onset occurs in the opponens pollicis most often presents through dysarthria and dysphagia, and more rarely through dysphonia or reduced closure of the mouth or problems with swallowing. Weakening of the core muscles, head drooping and problems

with posture are frequent in later stages of the disease, but are rarely its main symptom. In some patients, weakening of the muscles is preceded by a period when bundle branch tremor, muscle cramps and slight weight loss are observed. ALS does not affect the senses and the intellect. It is also not associated with trophic disorders, dysfunction of the anal sphincter and bladder, nor with disorders of superficial and deep sensation. The rate of disease progression varies considerably from patient to patient. As a rule it is steady, but sometimes additional illnesses, such as a respiratory infection, can greatly speed it up. As a consequence, every ALS sufferer is able to understand and compose speech but is unable to speak. They completely lose the ability to move their limbs, they cannot swallow (aphagia) and cannot breath due to weakening of the respiratory muscles. They retain the ability to move their eyeballs and eyelids. Progressive respiratory failure together with increasing hypercapnia and coma is the most frequent cause of death in patients with ALS. In this situation, patients usually pass away peacefully, often in their sleep. Some patients die as a result of choking or aspiration pneumonia. The use of a respirator in order to support breathing can prolong survival, but it is not able to stop the progression of the disease [4].

A diagnosis of ALS is based on three principles [3,5]:

- Symptoms of functional impairment of a specific area of the body.
- The presence of signs of involvement of the central and peripheral motor neurons in one or more segmental anatomical areas.
- Progressive functional impairment.

Amyotrophic lateral sclerosis is diagnosed clinically and is supported by electrodiagnostic assessment. Electrodiagnostic tests are of key importance for a diagnosis of ALS because they detect the involvement of the lower motor neurons. Of particular importance is an electromyographic test (EMG) of the muscles as well as a conduction test in the motor and sensory fibres of the peripheral nerves (ENG) [3]. The EMG test and conduction test are basic diagnostic aids and serve both to identify diseases that mimic ALS and to reveal motor unit loss, which is the fundamental characteristic that defines the pathogenesis of the disease [3,6]. Each year between 1.5 and 2.5 people out of 100,000 develop ALS. From the moment

of the appearance of the first symptoms, the average life expectancy is two to four years, and the most common cause of death is respiratory failure. The dynamics of the progress of the disease varies greatly. This makes it impossible to predict the survival time or the point at which medical intervention will be indicated, the purpose of which is, first and foremost, to prevent the effects of dysphagia and failure of the respiratory muscles. In younger people, who are initially more mobile and have greater lung capacity, including when the first symptoms affect the muscles of the limbs, the disease progresses more slowly [1,6–8].

Case study

The patient is a 65-year-old retired clinical psychologist. She is married and the mother of three sons. She lives with her husband and one son on the third floor of a block of flats with a lift. In November 2020 she noticed that she was having progressive problems with speech. In June she consulted a neurologist for a diagnosis. The doctor interviewed her, performed some neurological tests and recommended an EMG test. The tests confirmed the diagnosis: ALS. From March 2021 the patient had experienced tongue fasciculations, weakening of the upper left limb, atrophy of the thenar muscles of the left thumb, paresis of the neck when flexing the muscles and fasciculations in the muscles of the upper limbs. In July 2021 she reported to the casualty department because of considerably increased dysphagia, she was experiencing choking, she was unable to take in fluids and, furthermore, she had lost 10 kg in six months. In the casualty department she was assessed by a neurologist, it was recommended that she be hospitalised, receive a surgical consultation and be prepared to have a PEG (percutaneous endoscopic gastrostomy) tube fitted. In December 2021 a tracheotomy procedure was performed on the patient due to shortness of breath and choking – mostly because of secretion blockage. Her husband, son and three carers are responsible for her day-to-day care. She is well-oriented in all aspects and her mood is stable. The patient has come to terms with her illness and she tries to enjoy every day. Her deep faith means that despite her illness she neither despairs nor loses hope. She has

a lot of support from her husband, sons, carers and friends. The patient is conscious, spends all her time in a lying position, and requires constant help from others in every aspect of her everyday functioning.

On the Barthel Index she was given 20 points.

On the Norton Scale she was given 10 points

On the ALSFRS-R Scale she was given 0 points.

She has been placed on a programme of invasive mechanical ventilation in a home setting. Ventilation is carried out twenty-four hours a day, invasively through a tracheostomy tube with an Astral respirator. The patient uses an adjustable electric rehabilitation bed with an anti-decubitus alternating pressure mattress. She expresses 'yes' by blinking her eyes and 'no' by nodding her head, and if she wants to communicate something with the aid of her carer she uses a chart with the letters of the alphabet or C-Eye. At the beginning of her care the patient was able to move her hand slightly, but despite the exercises performed by her physiotherapist and carers the disease quickly caused complete paralysis. She is lying in the Fowler position, suctioned if thick mucus accumulates, and has the bandage around her tracheostomy tube changed twice a day. The skin around the tracheostomy is clean, without the presence of granulation tissue and there is no discharge from the tube. The side on which she is lying is changed every two hours and during toileting. The patient reacts to voice and pain stimuli. She is aware of herself and her surroundings. She has a normal physique, she weighs 60 kg, she is 160 cm tall and her BMI is 23.44. She is fed a blended and commercial diet via the PEG and has full control over her sphincters, although she defecates into protective underwear. Apart from nursing care, the patient is under the care of an anaesthetist (who visits once a week) and a physiotherapist (twice a week). Care involves laboratory tests of the blood and urine. The family can summon the nurse by telephone twenty-four hours a day.

Nursing diagnoses

Diagnosis 1. Impaired function of the respiratory system [10023362], impaired gas exchange [10001177]

Client: patient
Date added: 25.06.2022
Aim of care: effective breathing [10041334], effective gas exchange [10027993]
Planned nursing interventions:
- monitoring the vital signs [10032113]
- monitoring respiratory therapy [10037092]
- monitoring respiratory function [10012196]
- teaching the family to monitor respiratory function [10036971]
- teaching to measure the respiratory rate [10044772]
- teaching to take the pulse on the wrist [10045550]
- teaching to measure the body temperature [10044738]
- suctioning of airways [10044890]
- oxygen therapy [10039369]
- encouraging the use of breathing or coughing techniques [10006834]
- using support for positioning [10035467]
- measuring respirations [10046338]
- maintaining airway patency [10037351]
- respiratory support device [10016958]: respirator [10044842]
- endotracheal tube [10006868]
- monitoring blood oxygen saturation using a pulse oximeter [10032047]
- sustaining respiration [10031674]
- ensuring constant care [10006966]

Evaluation of nursing care: properly functioning respiratory system [10028156], effective gas exchange [10027993]

Diagnosis 2. Risk of aspiration [10015024]
Client: patient
Date added: 25.06.2022
Aim of care: effective maintaining of airway patency [10027964]
Planned nursing interventions:
- respiratory support device [10016958], suction apparatus [10019029]
- manual aspiration [10011723]

– suctioning of airways [10044890]
– monitoring respiratory function [10012196]
– assessing respiratory status using a monitoring device [10002799]
– assessing behaviour relating to eating and drinking [10002747]
– positioning the patient [10014761]
– encouraging the use of breathing or coughing techniques [10006834]
– expectoration [10007362], sputum [10018717]

Evaluation of nursing care: no aspiration [10028783]

Diagnosis 3. Dysphasia [10006457]
Client: patient
Date added: 25.06.2022
Aim of care: ability to communicate effectively [10014790]
Planned nursing interventions:
– identification of barriers to communication [10009683]
– assessing verbal communication abilities [10030515]
– assessing the degree of the family's ability to cope [10026600]
– teaching about effective communication [10036169]
– encouraging effective communication in the family [10036066]
– facilitating the communication of needs [10038196]
– communication device [10004714], computer [10004906]
– instruction material [10010395], facilitating the communcation of needs [10038196]

Evaluation of nursing care: ability to communicate [10000052]

Diagnosis 4. Risk of pressure ulcers [10027337]
Client: patient
Date added: 25.06.2022
Aim of care: prevention of pressure ulcers [10029065]
Planned nursing interventions:
– therapy using a support device [10039158], anti-decubitus mattress [10041560]
– assessing the risk of pressure ulcers [10030710]

- teaching about care of pressure ulcers [10044218]
- teaching about preventing pressure ulcers [10036861]
- assessing pressure ulcers [10040847]
- preventing pressure ulcers [10040224]
- implementing care that ensures comfort [10039705]
- positioning the patient [10014761]
- moving the patient [10033188], lifting equipment [10011349]
- dietary management [10023861]

Evaluation of nursing care: no pressure ulcers [10029077]

Diagnosis 5. Impaired function of the musculoskeletal system [10022642]
Client: patient
Date added: 25.06.2022
Aim of nursing: provision [10015935], need [10012495]
Planned nursing interventions:

- therapy using a support device [10039158]
- providing safety equipement [10024527], a bed rail [1000320]
- evaluating the status of the musculoskeletal system [10034030]
- assessing mobility [10030527]
- positioning of the patient [10014761]
- assisting with mobility in bed [10045972]
- assisting with eating and drinking [10037269]
- assisting with self-care [10035763]
- assisting with hygiene [10030821]
- rehabilitation [10016645]
- techniques for exercising the muscles and joints [10012300]
- transcutaneous neurostimulation device [10019188]
- enhancing the techique for performing muscle and joint exercises [10036512].

Evaluation of nursing care: properly functioning musculoskeletal system [10012773]

Diagnosis 6. Self-care deficit [10023410]
Client: patient
Date added: 25.06.2022
Aim of care: ensuring continuity of care [10006966], the family's ability to cope [10034736]
Planned nursing interventions:
- assisting with toileting [10023531]
- assisting with hygiene [10030821]
- assisting with eating and drinking [10037269]
- assisting with mobility in bed [10045972]
- dressing the patient [10031164]
- implementing care that ensures comfort [10039705]
- teaching the family about hygiene practices [10038131]
- teaching about mouth care [10038108]
- teaching about care of the perineum [10045165]
- teaching about tracheostomy care [10044888]
- assessing self-care [10021844]
- assessing possibilities [10026040]
- assessing self-efficacy [10024280]
- assessing the degree of the family's ability to cope [10026600]
- assessing the carer [10030562]
- maintaining dignity and privacy [10011527]
- assessing attitudes towards the disease [10024192]

Evaluation of nursing care: effective continuity of care [10035507], ability of the family to cope effectively [10034770]

Diagnosis 7. Risk of infection [10015133] + respiratory tract [10002100]
Client: patient
Date added: 25.06.2022
Aim of care: prevent infection [10028945]
Planned nursing interventions:
- monitoring the objective and subjective symptoms of infection [10012203]

– monitoring blood oxygen saturation using a pulse oximeter [10032047]
– monitoring the temperature of the body [10012165]
– monitoring the blood pressure [10032052]
– teaching the family about susceptibility to infection [10038149]
– teaching the family about preventing infection [10036928]
– assessing the signs and symptoms of infection [10044182]
– assessing susceptibility to infection [10002821]
– preventing infection [10036916]
– using aseptic technique [10041784]

Evaluation of nursing care: no infection [10028945]

Diagnosis 8. Potentiality [10015151] + malnutrition [10042077]
Client: patient
Date added: 25.06.2022
Aim of care: improvement in nutritional status [10035569]
Planned nursing interventions:
– assessing the risk of impaired nutritional status [10040921]
– assessing the risk of dehydration [10040932]
– assessing the nutritional status [10030660]
– assessing adherence to recommendations [10024185]
– assessing attitudes towards nutritional status [10002694]
– monitoring nutrition [10036032]
– teaching the family about the dietary regimen [10026525]
– teaching about dietary requirements [10046533]
– teaching about dehydration [10043832]
– teaching about nutrition [10024618]
– teaching about enteral feeding [10046546]
– demonstrating how to administer medication [10024354]
– implementing enteral feeding [10046178]

Evaluation of nursing care: effective response to enteral nutrition [10033427], positive nutritional status [10025002]

Diagnosis 9. Constipation [10000567]
Client: patient
Date added: 25.06.2022
Aim of care: treatment of constipation [10044729]
Planned nursing intervention:
- assessing bowel function [10036475]
- assessing the risk of dehydration [10040932]
- assessing the nutritional status [10030660]
- teaching the family about the dietary regimen [10026525]
- teaching about dietary requirements [10046533]
- managing defecation [10041427]
- managing digestion [10031782]
- monitoring fluid intake [10035303]
- monitoring food intake [10036614]
- monitoring the response to treatment [10032109]

Evaluation of nursing care: effective defecation [10028403]

Diagnosis 10. The risk of the side effects of medication [10037604]
Client: patient
Date added: 08.07.2022
Aim of care: no side effects of medication [10040295]
Planned nursing interventions:
- administering medication [10025444]
- demonstrating how to administer medication [10024354]
- evaluating the response to medication [10007182]
- monitoring the side effects of medication [10043884]
- assessing adherence to recommendations [10024185]
- encouraging adherence to medication recommendations [10038051]
- teaching about techniques for reducing risk [10038804]
- teaching about the side effects of medication [10044614]
- teaching about medication [10019470]

Evaluation of nursing care: no side effects of medication [10040282]

Diagnosis 11. Depression [10022402]
Client: patient
Date added: 01.12.2022
Aim of care: improvement [10026692] + mood [10036241]
Planned nursing interventions:
- assessing depression [10026055]
- assessing the ability to cope [10002723]
- assessing the attitude towards the disease [10024192]
- providing emotional support [10027051]
- interaction with the family [10035887]
- conversation [10019436]
- motivation [10012242]

Evaluation of nursing care: reduced level of depression [10027901]

Summary

This case shows how essential nursing care is in treating a patient and ensuring an improvement in the quality life. It describes the most important health problems with which patients with ALS have to struggle at the various stages of their illness. It shows how important cooperation is between the nurse, doctor, physiotherapist and other people involved in the patient's care. A combination of appropriate communication, swift identification of troublesome symptoms and effective intervention create a chance for an improvement in the quality of life of patients with ALS. The nurse spends the most time with the patient during his/her stay in hospital as well as during his/her long-term care at home. This person plays an active role in pharmacotherapy, nursing, rehabilitation, preparing the patient for tests and taking samples for tests. S/he is the main support for the patient and the family and takes on a primary educational role. When the patient and the family experience difficulty while performing certain activities, for example suctioning or administering medication via the PEG, they know who they must turn to for help. The patient is under the constant care of an interdisciplinary team. In this case, all the interventions improved the quality of life of the patient and her family.

Conclusions

According to the model for individual nursing care, nursing diagnoses were made in line with the International Classification for Nursing Practice (ICNP®), the nursing aims were defined, nursing interventions were planned and a nursing care assessment was performed. The nursing procedures implemented facilitated care for the patient and improved the quality of her and her family's life. Accurate diagnoses were made, which suggested the direction that the nursing care should take, made targeted interventions possible and enabled the expected care outcomes to be defined. The patient and her family were provided with medical, psychological and educational support. The patient's family were informed about how to look after a person suffering from amyotrophic lateral sclerosis properly.

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Chapter 7

Nursing care of a patient with hormonally inactive pituitary macroadenoma

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DOI: 10.48269/978-83-67491-19-8-07

Abstract
Pituitary tumours are slow-growing benign neoplasms that account for approximately 15% of all intracranial tumours. The diagnosis of pituitary tumours includes clinical signs and neuroimaging studies. This case report concerns a woman, now 71 years old, who was first hospitalised for increasing headaches and vomiting at the age of 38. A diagnosis of meningeal syndrome and destruction of the saddle of Turkey was made. The first operation to remove the pituitary

macroadenoma via the transsphenoidal route took place fifteen years after diagnosis and, due to regrowth of the inactive pituitary adenoma, reoperation was performed twice after a further five years. The last surgery was complicated by paralysis of the right peroneal nerve and paralysis of the adductor nerve on the left side. The implementation of nursing care is based on the application of measures aimed at reducing discomfort, eliminating possible complications, increasing the patient's level of independence, providing education and counselling on lifestyle changes, and coping with the limitations imposed by the disease.
Key words: pituitary macroadenoma, hypopituitarism, nursing care

Introduction

According to the Polish National Cancer Registry at the Maria Sklodowska-Curie National Research Institute of Oncology in Warsaw, the number of cases of primary malignant tumours of the brain and other parts of the central nervous system amounts to approximately 2,900 cases per year. Approximately 2,800 patients die annually from primary tumours of the brain and its surroundings in Poland [1, p. 36–40].

The most common tumours located in the area of the saddle of Turkey are pituitary adenomas. In most cases, these are benign tumours originating from glandular cells and characterised by a low growth rate [2, p. 5–11]. Pituitary tumours account for 15% of all central nervous system tumours and are the third most common intracranial tumour after meningiomas and brain gliomas. In young adults aged 20–24 years, more than 30% of central nervous system tumours are actually pituitary adenomas. The prevalence of pituitary adenoma at autopsy is 16.7% and on radiography it is 22.5% [3]. Pituitary adenomas can be divided according to size and endocrine function. Depending on the size of the lesion, there are two types of adenoma, namely microadenomas, which are less than or equal to 10 mm in diameter, and macroadenomas, which are greater than 10 mm in diameter [1]. Pituitary macroglandular adenomas show a greater growth trend compared to microadenomas. An increase in the size of a microadenoma to that of a macroadenoma is very rare, with only 5% of microadenomas exceeding 10 mm in size [1,4]. With regard to hormonal activity, adenomas are divided into hormonally active, which secrete one or more hormones, and hormonally inactive adenomas. Within

the group of hormonally active adenomas, the most common are prolactin-secreting adenomas (40%), adenomas giving symptoms of acromegaly or gigantism that produce growth hormone (20%) and adenocorticotropic hormone-secreting adenomas in Cushing's disease (10%). Hormonally inactive tumours account for 25% to 30% of cases [5]. Approximately 5% of pituitary tumours occur in the context of hereditary syndromes such as multiple endocrine neoplasia type 1 (MEN1) caused by mutations inactivating the menin gene, Carney syndrome resulting from mutations inactivating the alpha regulatory subunit of protein kinase A (PRKAR1A) or familial isolated pituitary adenoma syndrome [3].

The clinical manifestations of saddle cell tumours depend on endocrine function and tumour size. Localised symptoms caused by the tumour mass include headache, onset of hypopituitarism, symptoms of increased intracranial pressure, double vision, drooping eyelids, facial sensory weakness and visual disturbances with a characteristic recoil visual field loss resulting from pressure on the optic nerve junction. With a prolonged disease duration and large tumour size, the following can be observed: saddle deepening and enlargement, saddle ridge erosion and calcification in the tumour [2,5].

Hormonally inactive pituitary tumours may present as incidentalomas, that is, they may be completely asymptomatic and detected incidentally during an imaging examination performed for another reason. Alternatively, they may be diagnosed in association with clinical symptoms resulting from pressure on the optic nerve junction or hypopituitarism. The incidence of tumour diagnosis has been increasing over the years and is related to the increased availability of modern imaging methods, and is now found in approximately 10% to 20% of patients [4]. Patients with hormonally inactive pituitary adenoma have multiple comorbidities and moderately increased mortality, mainly related to cardiovascular disease and infectious diseases [6,7].

The gold standard for morphological assessment of a pituitary adenoma is MRI with or without gadolinium contrast. A full neuro-ophthalmological assessment, including visual field and visual acuity testing, is required for visual complaints [2]. Treatment includes active surveillance,

surgery and radiotherapy. Currently, the standard technique is endoscopic or microscopic transbronchial resection of the adenoma [2,5]. Surgery can improve pituitary adenoma function in up to 30% of patients with pre-existing hypopituitarism. There is a risk of hormone deficiency after surgery in between 2% and 25% of cases. Tumour regrowth occurs in approximately 30% of patients treated with surgery [7]. Radiotherapy is only considered in cases where surgery is contraindicated, e.g. in patients with other serious comorbidities or in non-operative cases [2,5].

The intention of this study is to identify both the health situation and the most important nursing strategies. The study used an individual case study research method referring to the nursing process.

Several types of research techniques and tools were used in order to obtain the right amount of data and information about the patient's health status, as well as her medical history. The main source of information was an interview with the patient, as well as with her family. A physical examination was an integral part of the interview. Observation was also used to gain a more detailed understanding of the patient and her involvement in the therapeutic process. Medical records were analysed to understand the patient's medical history, as well as her examination findings. The patient was assessed on the basis of tools, questionnaires, as well as standardised scales such as:

- the Visual Analogue Scale (VAS);
- the Acceptance of Illness Scale (AIS);
- the Lawton ADL Scale: a scale of complex activities of daily living;
- the Adherence in Chronic Diseases Scale (ACDS): a scale used to examine the implementation of the therapeutic plan in terms of pharmacotherapy;
- the Multidimensional Scale of Perceived Social Support (MSPSS).

A case report

Background data
Sex: female
Age: 71 years

Medical diagnosis: hormonally inoperable pituitary macroadenoma
Comorbidities:
- type 2 diabetes mellitus;
- ischaemic heart disease;
- hypertension;
- hypothyroidism and adrenal insufficiency.

Several types of research techniques and tools were used to obtain the right amount of data and information on the patient's health status and medical history. The main source of information was an interview with the patient, as well as with her family. A physical examination was an integral part of the interview. Observation was also used to gain a more detailed understanding of the patient and her involvement in the therapeutic process. Medical records were analysed to understand the patient's medical history, as well as her examination findings. The patient was assessed on the basis of tools, questionnaires and standardised scales such as the VAS scale, the AIS scale, the Lawton ADL Scale, the MSPSS scale.

Medical history

On 14.04.1990, a woman aged 38 years was admitted with worsening headaches and vomiting to the Infectious Diseases Ward of a hospital in Poland. The following day she was referred to the Department of Neurosurgery with a suspected expansive intracranial lesion. Meningeal syndrome was diagnosed and a cranial X-ray showed destruction of the Turkish saddle. During hospitalisation, the meningeal symptoms withdrew. The patient did not consent to the proposed surgical treatment, so she was discharged home with a recommendation for follow-up in one month. The first surgery to remove the pituitary macroadenoma via the transsphenoidal route took place in 2005. During follow-up visits in between 2006 and 2008, due to the hormonally inactive nature of the tumour and the stable MR image (no regrowth), reoperation was not proposed but further follow-up visits were recommended. On 16.03.2010, surgery was performed to remove the outgrowth of the inactive pituitary adenoma. The surgical treatment again took place without

complications. On 08.11.2011, the last surgical procedure for partial removal of the tumour took place, endoscopically via the transsphenoidal route. Right fibula nerve palsy was diagnosed on the second postoperative day and left adductor nerve palsy was on the third day, without binaural visual disturbances. The patient complained of headaches. Follow-up CT and MR imaging of the pituitary showed fresh postoperative changes and swelling of the residual tumour parts in the cavernous sinuses. Given the small chance of removing the residual tumour from both cavernous sinuses and the associated risk of life-threatening complications, the lack of visual disturbances but only oculomotor disturbances, reoperation was abandoned and conservative treatment was continued. The patient continued to attend follow-up appointments, the last one taking place on 20.07.2022. In 2019, the woman developed COVID. A complication of the disease was excessive hair loss and deafness of the left ear. The patient has been widowed for eight years and has three children. She lives in the countryside with her son, his wife and their child. The family situation and housing conditions are good. The patient has a vocational education. She supports herself with a pension. Physical examination revealed:

- respiratory system: breathing normal, exertional dyspnoea;
- cardiovascular system: pulse normal, swelling of feet and ankles, varicose veins on right calf;
- gastrointestinal system: weight normal, appetite and thirst normal, constipation, nausea and vomiting, diabetic diet;
- genitourinary system: without disorders, diuresis normal, menstrual disorders and premature menopause at 30 years of age;
- nervous system: full consciousness, palsy of nerve III and VI;
- musculoskeletal system: patient walking, joint mobility limited, muscle tone normal;
- skin: clean, dry, dull, warm, good hygiene condition;
- sight: nerve palsy III and IV, reading glasses;
- hearing: deafness of left ear;
- sleep: sleep disturbance (difficulty falling asleep, awakening during the night, daytime sleepiness);

– pain: headaches (six points on the VAS scale), right wrist pain (five points on the VAS scale);
– other: chronic fatigue, upper and lower dentures, disability group (moderate degree). After performing the tests and scales, the following results were obtained:

a) AIS questionnaire: the patient scored 22/44 points, indicating an average level of acceptance and adaptation to the disease.
b) ADL Scale according to Lawton: patient scored 23/27 points indicating that she needs little assistance in performing some complex activities of daily living.
c) ACDS scale: the patient scored 27/28 points, indicating a well-implemented therapeutic plan in terms of pharmacotherapy.
d) MSPSS scale: the patient scored Friends 27 points, Family 27 points and Significant Person 25 points, results indicating a high degree of social support.

After data collection and examination, the patient's main health problems were identified, nursing diagnoses and a nursing intervention plan were formulated, and the effects of care were assessed.

Nursing diagnosis

Nursing diagnosis 1:
headache (six points on the VAS scale) due to pressure of the tumour on adjacent structures, manifesting itself in increasing frequency and intensity.
Purpose of care:
reduction of pain.
Nursing interventions plan [8,9]:
– administration of pain medication as prescribed by the doctor;
– talking to the patient about the intensity and type of pain;
– assessment of pain according to the numerical VAS scale;
– observation of vital signs (blood pressure, pulse, respiration, temperature, glycaemic value, saturation);
– application of cold compresses that can relieve pain;

- identifying factors that may increase pain;
- ensuring the patient is quiet and calm;
- introduction to relaxation techniques, music therapy
- evaluating the effectiveness of the administered medicine, reporting to the doctor about side effects or resistance to the medicine;
- making the patient aware of the need to report pain immediately;
- documentation of actions.

Justification for implementing nursing interventions:
pain is a subjective indicator of an ongoing process in the body. The patient's definition of pain is the basis for the response and choice of intervention. Pain increases stress, which in turn can exacerbate pain. By eliminating stressors, learning relaxation, pharmacotherapy and non-pharmacological ways of relieving pain, the patient can be relieved of pain and feel better.

Interventions aimed at reducing pain. Assessment of pain parameters and vital signs will help to select appropriate interventions to reduce the patient's perception of pain. In addition, the use of cold compresses can relieve pain, which also contributes positively to wellbeing [10,11].
Evaluation of care outcomes and nursing interventions undertaken:
pain has been relieved (zero points on the VAS scale).

Nursing diagnosis 2:
pain in the right wrist (five points on the VAS scale) resulting from prolonged and regular overloading of the dominant hand, which is bothersome during extreme ranges of movement and carrying objects.
Purpose of care:
to relieve pain.
Nursing interventions plan [8,12]:

- administration of analgesic and anti-inflammatory medication as prescribed by the doctor;
- talking to the patient about the intensity and type of pain;
- assessment of pain according to a numerical VAS scale;
- observation and gentle palpation of the painful area;
- avoiding positions and activities that aggravate pain;

– relieving the wrist with an orthosis, wrist brace or splint;
– application of medication in the form of an ointment (calendula flower extract/chestnut bark) or gel (e.g. aluminium acetate 1%), which have anti-inflammatory, anti-coagulant and anti-oedema effects;
– applying a compress to the sore area;
– recommending the use of ergonomic principles when lifting;
– encouraging the use of physiotherapy.

Justification for implementing nursing interventions:
the use of pharmacological and non-pharmacological methods as well as rehabilitation and ergonomic principles during daily activities will minimise pain [10,11].
Evaluation of care outcomes and nursing interventions undertaken:
the pain has been relieved (zero points on the VAS scale).

Nursing diagnosis 3:
nausea and vomiting associated with hypothyroidism, accompanied by symptoms of weakness and discomfort.
Purpose of care:
elimination of nausea and vomiting. Prevention of dehydration.
Nursing interventions plan [8,9]:
– administration of antiemetic and rehydration medications as ordered by the physician;
– assessing and documenting each episode of nausea and/or vomiting;
– safeguarding the patient against choking;
– ensuring hygiene of the patient and the environment;
– encouraging the patient to rinse her mouth with water after each vomiting episode;
– ventilating the room to eliminate persistent odors;
– observation of vital signs;
– observation of hydration status of the patient (assessment of skin tone and elasticity, moisture content of mucous membranes, elasticity of eyes, degree of filling of jugular veins);
– conducting fluid balance;

- encouraging the patient to consume cool drinks and at least 1.5 litres a day;
- recommending eating frequently but in small quantities, eating slowly and without sipping during meals, and resting in a sitting position after meals;
- to improve the taste, recommend sucking on a peppermint and rinsing the mouth after each meal;
- advising the patient to take deep breaths through the mouth to reduce the sensation of nausea;
- educate the patient on the management of a recurrence of an episode of nausea and/or vomiting.

Justification for implementing nursing interventions:
hypothyroidism can cause gastrointestinal disorders and contribute to the presence of symptoms in the form of nausea and vomiting. Improving wellbeing and quality of life after treatment by relieving gastrointestinal symptoms promotes a reduction in discomfort and prevents dehydration. Adequate hydration is equally important to counteract dehydration and weakness. An adult should drink about two litres of fluids a day to ensure optimal body function [10].
Evaluation of care outcomes and nursing interventions undertaken:
discomfort resolved. Patient adequately hydrated.

Nursing diagnosis 4:
constipation caused by reduced peristalsis due to slowed metabolism in hypothyroidism, manifested by a constant feeling of heaviness and fullness in the abdominal cavity.
Purpose of care:
regulation of the bowel cycle, reduction of abdominal discomfort.
Nursing interventions plan [8,13]:

- evaluate bowel function, diet, physical activity, constipation measures taken, sensation of changes in the anal area and stool pattern;
- suggest keeping a bowel movement diary with information such as time of day, consistency, volume, frequency, bowel difficulties and use of bowel aids;

- recommend a fibre intake of 20 g per day and gradually increase the amount of fibre in the diet;
- recommending the intake of 1.5 to 2 litres of fluids per day;
- suggesting the use of cereal bran mixes, apple puree and dried prunes;
- recommending increasing the patient's physical activity;
- adopting a comfortable, physiological position during defecation;
- conversation with the patient about the medications she is taking, recommendation to avoid long-term use of laxatives.

Justification for implementing nursing interventions:
constipation is a common clinical problem causing many discomforts that significantly reduce the comfort of life. Constipation should be carefully diagnosed and treated according to the identified cause. Treatment and therapy includes identification and elimination of the causes of constipation, but most importantly, lifestyle changes (eating habits and increased physical activity). Treatment primarily involves the administration of osmotic and stimulant pharmacological laxatives. Patient education and support in the long-term process of lifestyle change are extremely important [10,14].
Evaluation of care outcomes and nursing interventions undertaken:
normal bowel cycle restored and comfort in the abdominal cavity.

Nursing diagnosis 5:
increased risk of falls for the patient due to visual impairment resulting from paralysis of the third and sixth optic nerve.
Purpose of care:
to minimise the risk of falling and assist with some activities of daily living.
Nursing interventions plan [8,9,15]:

- assessment of the patient's degree of independence;
- prevent physical injury by assisting the patient in an unfamiliar place, preventing collision with other people or objects;
- suggest wearing flat-heeled shoes with a non-slip sole to stabilise the ankle joint;
- suggesting the use of wall brackets or special chairs when bathing;

- recommending gradual standing up after a long stay in bed;
- using a walking stick, holding on to handles or having a third party help for longer walks and mobility difficulties;
- suggesting the arrangement of everyday objects so that it is not necessary to climb on chairs or bend excessively;
- installing proper lighting;
- securing angular elements in the dwelling;
- avoiding steep stairs, slippery surfaces and moving carpets;
- providing assistance from family or third parties in complex activities of daily living.

Justification for implementing nursing interventions:
the selection of interventions and investigations should be based on the patient's history and risk of falls. A sense of safety, comfort and minimisation of anxiety is the basis for preparing the patient to function independently. Eliminating threatening, external, environmental, residential factors will significantly contribute to reducing the risk of falls [10].
Evaluation of care outcomes and nursing interventions undertaken:
the patient's self-care needs and ability were determined and the risk of falls was eliminated.

Nursing diagnosis 6:
limitations in performing daily tasks, reduced independence, resulting from hypothyroidism, manifested by excessive fatigue.
Purpose of care:
to improve the patient's quality of life by minimising feelings of fatigue and regulating thyroid hormone levels.
Nursing interventions plan [8,16]:

- to assess the severity of fatigue and the frequency of its occurrence;
- checking medications taken by the patient for side effects in terms of increasing fatigue symptoms;
- identification of factors that may exacerbate fatigue: frequent lying in bed and frequent daytime naps, lack of activating activities, nausea and vomiting;
- assessing the patient's ability to perform activities of daily living;

– setting small, easy and short-term goals;
– encouraging the patient to keep a diary of daily activities and record symptoms and feelings related to fatigue;
– encouraging the patient to express feelings related to fatigue;
– familiarise the patient with magazines and websites on fatigue;
– teaching the patient energy-saving strategies, e.g. sitting instead of standing while showering;
– encouraging the patient to engage in physical activity appropriate to her condition;
– recommend follow-up visits to an endocrinologist and regular diagnostic tests to control thyroid hormones.

Justification for implementing nursing interventions:
controlling hypothyroidism by regular visits to the doctor and examinations, as well as constant use of medication and adjustment of diet and physical activity are the basis for well-being. Feelings of fatigue can be corrected by following a consistent daily schedule including rest, plenty of sleep and avoidance of stressors [10].
Evaluation of care outcomes and nursing interventions undertaken:
the patient recognises factors that exacerbate fatigue and applies the principles of fatigue control.

Nursing diagnosis 7:
excessively dry and dull skin associated with hypothyroidism, characterised by rough, wrinkled, scaly epidermis.
Purpose of care:
to restore normal skin condition.
Nursing interventions plan [17]:
– observation of skin coverings and documentation of pathological skin changes;
– recommendation to avoid long and hot baths;
– use of gentle pH-neutral preparations and thorough drying of the skin;
– use of light moisturising creams/emulsions designed for dry skin and containing UV protection, lubricating oils, and products containing substances such as urea, ceramides, glycerine;

– use of enzyme or algae scrubs to exfoliate the skin;
– diet containing fresh fruit and vegetables, nutritional products rich in vitamins B, C and E, omega-3 and omega-6 acids;
– recommendation to take about two litres of fluids per day.

Justification for implementing nursing interventions:
metabolic dysregulation in hypothyroidism affects many organs and systems. Dry skin in hypothyroidism is one of the most characteristic, annoying symptoms, but also one of the easiest to eliminate. Pharmacological treatment of hypothyroidism, complemented by dietary treatment and skin care, becomes the overriding goal [10].
Evaluation of care outcomes and nursing interventions undertaken:
the patient's skin condition has improved.

Nursing diagnosis 8:
excessive hair loss and brittleness due to hypothyroidism and a history of COVID-19, manifested by thin, sparse hair and mental discomfort.
Purpose of care:
to strengthen the condition and reduce hair loss and improve the patient's wellbeing.
Nursing interventions plan [18]:
– conversation with the patient regarding hair loss for her situation and disease entities;
– recommending the use of mild shampoos and rinsing hair with lukewarm water;
– performing scalp massage with hair growth rubs;
– suggesting the use of soft hair brushes;
– recommending the use of heat-protection products, low heat and a minimum distance of 15 cm of the hair dryer from the head when drying hair;
– giving up the use of flat irons and limiting the use of hair styling products;
– suggesting a diet containing iron zinc, vitamins A, E, D, biotin, omega-3 fatty acids;

– intake of 1.5 to 2 litres of fluids per day;
– recommendation to see a dermatologist and a trichologist.

Justification for implementing nursing interventions:
hair loss related to hypothyroidism, aggravated by a previous COVID-19 infection, is a problem for the patient due to the lack of acceptance of her appearance and the associated mental discomfort. Nursing interventions based on education and nursing activities have brought measurable benefits. It should be remembered that hypothyroidism is an unfortunate disease, so actions should be constant and systematic, taking into account the control of the underlying disease [10].
Evaluation of care outcomes and nursing interventions undertaken:
patient's hair condition and well-being improved.

Nursing diagnosis 9:
decreased physical performance resulting from reduced cardiac output manifesting as dyspnoea on exertion.
Purpose of care:
to increase exercise tolerance.
Nursing interventions plan [19,20]:

– assessing the patient's physical capacity and response to exercise;
– encouraging the patient to engage in physical activity appropriate to her exercise capacity and health status;
– identifying and eliminating factors and situations that may exacerbate dyspnoea;
– in case of exacerbation of the disease, placing the patient in a high or semi-high position;
– monitoring of vital signs (blood pressure, pulse, respiration);
– assessing the patient's skin tone;
– recommending the use of loose, cotton personal undergarments;
– reducing distress and anxiety associated with dyspnoea – being present and talking about concerns;
– teaching the patient and motivating her to perform breathing exercises;
– participating in pharmacological treatment as ordered by the doctor;
– documenting the measures taken.

Justification for implementing nursing interventions:
diagnosing and observing the patient is an indispensable element of the intervention in order to quickly observe undesirable symptoms related to dyspnoea and exercise intolerance. It is required to follow pharmacological recommendations and to use physical activity and breathing exercises [10].
Evaluation of care outcomes and nursing interventions undertaken:
the patient's physical capacity has increased.

Nursing diagnosis 10:
increase in the amount of fluid in the body caused by impaired cardiac systolic function due to ischemic disease and venous insufficiency, manifested by dough-like swelling of the feet and ankles of the lower limbs, a feeling of heaviness in the legs and varicose veins of the right calf.
Purpose of care:
elimination of swelling and varicose veins. To improve the patient's comfort.
Nursing interventions plan [8,16]:
- control of swelling and varicose veins including location and size;
- observation of pathological skin changes;
- daily monitoring of body weight;
- controlling the volume of fluid intake and excretion;
- monitoring of vital signs;
- prescribing a low-sodium diet;
- intake of a maximum of 1.5 to 2 litres of fluids per day;
- recommendation to use loose, cotton personal and bed linen;
- recommending the use of pH-neutral cleansers and thorough drying of the skin in the swollen areas with a soft towel;
- use of skin lubricating products;
- if fractures occur, making aseptic dressings with antiseptics;
- temporary positioning of the limbs above the level of the heart with the use of amenities;
- improving the blood supply to the skin by massaging in a cardiac direction;

– selection and use of compression stockings;
– adaptation of exercises to the patient's current state of health;
– avoiding prolonged standing and sitting;
– avoiding wearing tight trousers and high-heeled shoes;
– avoiding overheating: avoiding hot baths, saunas and tanning beds;
– documenting the measures taken.

Justification for implementing nursing interventions:
daily, constant observation of the places where oedema occurs will allow the patient to quickly notice any changes and decide whether the nursing interventions are effective. Proper skin care protects against possible skin cracking and infection. Gymnastics, physical activity, isometric exercises, diet and control of fluid intake and excretion will reduce swelling [10,21].
Evaluation of care outcomes and nursing interventions undertaken:
swelling and varicose veins of lower limbs decreased. The patient's sense of comfort improved.

Nursing diagnosis 11:
sleep disorders due to the underlying disease and comorbidities, manifested by difficulty falling asleep, waking up at night, getting up early, fatigue, low mood.
Purpose of care:
to obtain effective sleep.
Nursing interventions plan [8]:
– patient interview to assess the patient's functioning in terms of comorbidities and sleep disturbances;
– assessment of the patient's nightly rest conditions;
– monitoring of sleep patterns: time, naps, night waking;
– eliminating external factors interfering with sleep (e.g. light, noise from passing room);
– using calming and relaxation techniques before bedtime e.g. listening to soft music, reading, drinking warm non-wakeful drinks;
– limiting external stimuli immediately before bedtime;
– encouraging physical activity during the day e.g. walking;
– avoiding sleeping during the day and reducing activity in the evening;

– use of pharmacotherapy as prescribed by a doctor;
– documentation of actions taken.

Justification for implementing nursing interventions:
sleep disorders and the associated fatigue and irritability contribute to the patient's poor well-being. The long-term condition related to sleep disorders increased the patient's fatigue and symptoms of discomfort. The implemented nursing interventions regarding everyday hygiene and sleep hygiene improved the quality of sleep [10].
Evaluation of care outcomes and nursing interventions undertaken:
the patient falls asleep without difficulty, wakes up less often during the night, and gets up later.

Nursing diagnosis 12:
increased risk of pituitary stroke and complications from comorbidities including diabetes mellitus and hypertension.
Purpose of care:
to prevent life-threatening conditions and reduce the risk of complications.
Nursing interventions plan [22]:
– talk to the patient to educate her about risk factors for pituitary stroke, as well as other complications due to the patient's comorbidities;
– encourage a self-monitoring diary of blood pressure and blood glucose measurements;
– recommend measuring blood pressure and blood glucose after each exercise;
– advising to limit exercise when pain and dizziness are present;
– advising to avoid situations that may exacerbate a rise in blood pressure;
– avoiding prolonged standing and staying in poorly ventilated rooms;
– recommendation to eat regularly four to six times a day, in small portions and at fixed times;
– restriction in the diet of meat products, fried foods, consumption of products containing table salt, and avoidance of coffee and alcohol;

- recommending the inclusion in the diet of products such as wholegrain products, dark bread, cereals, poultry meat, fish, sauerkraut, tomatoes, lean cottage cheese, olive oil, vegetable margarine;
- offering healthy snacks in the form of raw vegetables and fruit;
- drinking 1.5 to 2 litres of fluids a day, eliminating sweetened and carbonated drinks from the diet;
- making the patient aware of the need to systematically take the medicines prescribed by the doctor and to contact the doctor in case of lack of therapeutic effects.

Justification for implementing nursing interventions:
the increased risk of stroke in the course of chronic diseases and existing risk factors requires patient education and effective, ongoing nursing interventions. Normalising blood pressure and glycaemic levels through pharmacological actions and lifestyle changes significantly reduce the risk of stroke [10].
Evaluation of care outcomes and nursing interventions undertaken:
the patient was educated about the risk factors and how to prevent them from developing.

Summary

The intention of this study was to recognise the health situation and identify the most important nursing and health care problems of a patient with hormonally inactive pituitary macroadenoma and to develop an individual nursing care plan. The aim of the study was achieved. Through the use of a detailed interview, careful observation and the use of a range of research tools, it was possible to make a detailed assessment of the patient's health situation and to undertake nursing interventions.

The problems/nursing diagnoses in the nursing process were arranged in a hierarchical manner. This made it possible to present all the problems, starting with the most distressing and finishing with the least distressing, but which could have a significant impact on the patient's quality of life. The main health problems of a patient with a pituitary macroadenoma were clinical symptoms related to the tumour mass and pressure on

adjacent structures, these included headaches, nausea, vomiting, visual disturbances and related consequences. Some of the health problems were due to the lack of hormonal function of the tumour and included symptoms such as constipation, excessively dry and dull skin, chronic fatigue, excessive hair loss and disturbed sleep patterns. A number of complaints related to the patient's comorbidities were also observed.

The implementation of nursing care for the patient with pituitary macroadenoma was based on the application of measures aimed at reducing complaints, eliminating possible complications, increasing the patient's level of independence, as well as providing education and counselling on lifestyle changes and coping with the limitations imposed by the disease. As a person with a pituitary tumour struggles with numerous changes in his or her appearance and requires a change in lifestyle, education on care activities is extremely important. Psychological support of the patient is also a particularly important element in order to provide a sense of security, increase quality of life and improve personal and social functioning.

Conclusions

A hormonally inactive pituitary macroadenoma significantly disrupts the patient's functioning in all areas of life and causes a range of health complaints related to the lack of endocrine function and the tumour mass and pressure on adjacent structures, requiring a multifaceted approach on the part of the nurse.

The care of a patient with a pituitary tumour requires an individual and holistic approach on the part of the nurse, taking into account the patient's needs and opportunities for activities of daily living in order to ensure a better quality and improved quality of life.

The role of the nurse in the care of a patient with a pituitary macroadenoma is to provide health education, encourage the use of knowledge and care for one's own health, develop coping skills, prepare the patient for informed self-care and provide psychological support to the patient.

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Chapter 8

Health problems in the care of a patient with prostate cancer

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DOI: 10.48269/978-83-67491-19-8-08

Abstract
Prostate cancer is the second most frequently diagnosed cancer in men worldwide, after lung cancer. In the early stages in Poland it is usually detected accidentally. Despite effective treatment methods, a large group of men with symptoms of disseminated cancer process become patients of palliative care. This chapter reports the case of a man, aged 89, residing in an inpatient hospice with a diagnosis

of advanced prostate cancer (Gleason Score 5 + 3 = 8), with bone metastasis, who had previously been treated with hormone therapy. At the time of nursing care, the patient scored ten points on the Barthel Index, seven points on the NRS pain scale, and nineteen points on the MNA nutrition scale and had a BMI of 20.76. He showed incomplete acceptance of the disease (twenty points on the AIS scale) and features of mild depression (seventeen points on the Beck depression scale). The main health problems/nursing diagnosis are pain, swelling, difficult urination, constipation, weakness and malnutrition. End-stage prostate cancer has a strong impact on the ability to perform daily activities and limits independence. Caring for cancer patients requires nurses to be highly qualified and skilled, as well as capable of showing understanding and compassion.
Key words: prostate cancer, generalised neoplastic process, palliative care

Introduction

Prostate cancer (*carcinoma prostatae*) is one of the world's major health care problems due to the rapid increase in the number of cases. According to the World Health Organization (WHO), it is the second most common cancer in men worldwide, after lung cancer. An estimated 1.4 million new cases of prostate cancer were predicted to be diagnosed worldwide in 2020. According to 2020 Polish National Cancer Registry data, the condition accounted for 19.6% of all registered cancer cases in men and 10.6% of cancer deaths in Poland in 2020 [1]. The most important predisposing factor for the disease is age. The likelihood of developing the disease is higher the older a man is. Other factors that increase the risk of prostate cancer include inadequate diet (including too much fat consumption, meat consumption, low number of vegetables), sedentary lifestyle, alcohol abuse, stress and nervous tension, infections and also the influence of the external environment [2, p. 19].

Prostate cancer may be asymptomatic for a long time and detected incidentally during screening. Initial urinary abnormalities are not a symptom to differentiate prostate cancer from benign prostatic hyperplasia. In the advanced form of cancer, the following symptoms appear: obstructed urination, weakened urine stream, increased frequency and prolonged micturition time (especially at night), haematuria, pain in the lumbar region, bone pain, complete urinary retention or penile erectile dysfunction [3]. Early detection of prostate cancer is crucial for

successful treatment. Therefore, it is important to have regular preventive examinations, especially for men aged 50 and older. The basic test is a per rectum examination (digital rectal examination, DRE,) and laboratory determination of the concentration of specific steroidal antigen (Prostate-Specific Antigen, PSA) in the blood serum. The final diagnosis of prostate cancer is determined by prostate biopsy. Currently, the "gold standard" is a thick-needle biopsy under TRUS (Transrectal Ultrasonography) guidance [4]. The TNM (Tumor, Nodules, Metastases) system is used to classify the clinical stage of prostate cancer. The choice of treatment depends on the stage, the patient's age, comorbidities, the degree of histological malignancy as determined by the Gleason Score, and the patient's choice of treatment method. The Gleason Score is based on the histological differentiation of the tumour and correlates with the clinical course of the disease. The higher the grade, the greater the risk of disease progression and metastasis, and the greater the likelihood of a shorter survival time [5].

Regular preventive examinations are important for this type of cancer, especially for men aged 50 and older. Treatment can be varied and depends on a number of factors: the stage of the disease, the patient's age, general health and patient preference. The first method of treatment is surgical removal of the prostate gland, called a prostatectomy. The operation is performed in the traditional open form or using laparoscopic techniques. Another method of treating prostate cancer is radiation therapy. Chemotherapy is used for advanced prostate cancer that has not responded to other forms of treatment. Hormone therapy is used for advanced prostate cancer that is hormone-dependent. It is also often used for palliative treatment [6–8].

A diagnosis of cancer is often perceived by patients as a sentence of inevitable suffering and death. The disease disrupts the patient's previous functioning, which ultimately worsens the patient's quality of life, so the actions of medical personnel should be holistically focused. The nurse, therefore, plays a key role in patient care, being a member of the therapeutic team and having the most frequent contact with the patient. His/her activities do not focus only on biological aspects, but also on emotional,

motivational, counselling and educational support. Through frequent contact, the nurse earns the patient's trust, which allows for a personalised approach and comprehensive care. S/he monitors the patient's condition, ensures the patient's comfort, supports the patient in daily activities, provides contact with loved ones and educates the patient and the family [9].

Objective of the study

The purpose of this study was to identify the health problems/nursing diagnosis of a patient with stage IV prostate cancer, as well as to present current information on this disease entity.

Methods, techniques and research tools

The study used a research method, namely, an individual case study using the nursing process developed on the basis of the care model of D. Orem for a patient with prostate cancer. In order to collect information, research techniques such as direct observation, interview and medical records, medical and nursing, were used. In addition, the following research tools were used: the Gleason Score, BMI (Body Mass Index), the MNA (Mini Nutritional Assessment) questionnaire, the NRS (Numerical Rating Scale), the Barthel Index, Beck Depression Inventory (BDI), the AIS (Acceptance of Illness Scale) questionnaire and the Multidimensional Scale of Perceived Social Support (MSPSS).

A case report

The patient is aged 89. He presented to the emergency department two years ago because of urinary problems. He was admitted to the ward, where a bladder catheter was inserted to decompress the bladder, and laboratory tests and a biopsy of the prostate were performed. The biopsy revealed the presence of a malignant neoplasm within the prostate gland (Gleason Score 5 + 3 = 8). In his history, the patient also admitted to experiencing pain in his bones, for which reason additional tests were ordered, namely tumour markers, radiographs, bone scintigraphy and

a CT scan. The examinations confirmed the spread of the cancerous process with grade IV bone metastasis. On the basis of the patient's history, the test results obtained and the prediction of disease progression, a decision was made to administer hormonal treatment. After the treatment was established, advice was given on home management and the timing of subsequent follow-up visits, and the patient was discharged home. The man was hospitalised several more times due to difficulties in urination and complaints of pain. As a result of the patient's deteriorating general condition and lack of support in the home environment, he was admitted to an inpatient hospice.

The patient is currently staying in an inpatient hospice. He is conscious and fully coherent. His body build is average and his nutritional status is mediocre. His height is 170 cm, weight 60 kg (BMI = 20.76), which for people aged 65 and over is associated with a feeding problem. On the basis of the MNA scale for assessing nutritional status, in which the patient scored nineteen points, the patient was found to be at high risk of malnutrition. On the day of the examination, the skin was pale, with visible eruptions all over, but sores or scars were not present. Oedema was present around the ankles of the lower extremities. The lymph nodes were not enlarged. The patient wears glasses for reading and watching TV. The nose is straight and unobstructed. Oral mucous membranes were dry, indicating slight dehydration. The abdomen was symmetrical and soft, there was no pathological resistance, and audible peristalsis and peritoneal symptoms were absent. Goldflam's sign was negative. Meningeal signs were absent, muscle tone was normal, and paresis was absent. The spine was painful in the thoracolumbar region and ribs; the patient rated the pain as seven on the NRS scale. Paresis or contractures of the upper and lower extremities were absent. Comorbidities included hypertension.

The patient reported no allergies, but spoke of weakness and dizziness. The patient was recumbent, needing assistance with all activities of daily living: eating, getting in and out of bed, maintaining hygiene and toileting, climbing and descending stairs, and controlling urination and bowel movements; the patient scored ten on the Barthel Index.

The patient is a widower, and his children are also deceased. The only close person who cares for him is the daughter of friends. The patient suffers from mild depression (seventeen points on BDI), which is caused by his cancer diagnosis. He received a score of twenty on the AIS scale, which confirms a medium level of acceptance of the disease and a sense of being a burden to loved ones and those caring for him. However, on the MSPSS, the patient received no fewer than eighty points, proving that he receives a lot of support from his goddaughter, with whom he can experience the disease and share every sorrow. However, she lives some distance away, so frequent visits are a great problem, but they maintain constant telephone contact.

In the course of the nursing care of a patient under inpatient hospice care, the following nursing diagnoses were observed and established.

Nursing diagnosis

Nursing diagnosis 1:
spinal pain due to bone metastasis of the primary cancer site and continuous progression of the disease, manifested by limitation of activity and feeling of anxiety.
Purpose of care:
reduction of pain.
Nursing intervention plan:
assessment of the severity, nature and location of pain – the NRS scale:

- observing the patient for behaviours (e.g., facial expressions, gestures) that provide information about the presence of pain, symptoms to which the patient is unwilling to admit;
- alleviating anxiety and fear by patiently listening to the patient's feelings, concerns and complaints;
- using extra pillows and other comforts to position the patient in bed in a convenient position;
- consultation with a physiotherapist regarding the adjustment of physical activity and rehabilitation to the patient's condition;
- application of warming ointments to the site of pain;

– administration of pain medications according to the physician's order sheet;
– documentation of the measures taken in the medical record.

Justification for implementing nursing interventions:
in order to alleviate and counteract pain, it is not enough to limit oneself to identifying it once. Pain management includes assessment of pain on multiple levels and should be performed systematically, no less than twice a day. The assessment consists of determining the severity, location, nature, aggravating factors and its impact on daily functioning such as mobility, sleep, diet. Taking into account the patient's subjective feelings, we can determine a specific form of therapy. The use of percussive equipment will reduce the discomfort caused by pain. Physiotherapists and warming ointments can also help manage pain [10–12].

Evaluation of care outcomes and nursing interventions undertaken:
pain has decreased, activities must continue. Further verification of pain intensity needed: NRS 4.

Nursing diagnosis 2:
risk of infection and discomfort caused by the need to maintain a catheter to drain urine from the bladder.

Purpose of care:
preventing infection by inserting a Foley catheter and improving patient comfort.

Nursing interventions plan:
– observation of urine outflow and its appearance, colour;
– daily monitoring of the inserted catheter;
– placing a urine bag below the bladder;
– perineal and catheter hygiene twice a day;
– checking the patency of the catheter;
– use of a urine-acidifying diet to prevent the development of infection;
– preventive administration of preparations containing cranberry extract;
– providing adequate amounts of oral fluids;
– emptying the urine bag twice a day;

– systematic replacement of urine bags;
– fluid balance: completing documentation;
– report any abnormalities to the doctor.

Justification for implementing nursing interventions:
maintaining a Foley catheter involves the risk of infection. Daily monitoring of the catheter, urine and toileting will help detect infection and remove it. Placing a urine bag below the bladder will ensure that urine does not back up. Drinking cranberry juice will have an acidifying effect on the urine, which will reduce the risk of urogenital infections. Following the rules of aseptics and antiseptics will reduce the risk of infection. Observation for infection will allow immediate interventions [13–16].
Evaluation of care outcomes and nursing interventions undertaken:
there was no infection of the Foley catheter. Patient comfort was increased.

Nursing diagnosis 3:
risk of malnutrition due to lack of appetite and insufficient food intake.
Purpose of care:
improve appetite and maintain proper nutritional status.
Nursing interventions plan:
– determining the cause of lack of appetite: constipation, pain complaints;
– ensuring proper conditions for taking meals: a comfortable position, ventilation of the room;
– serving meals at fixed times of the day;
– serving meals of proper temperature and consistency;
– taking into account the patient's dietary preferences;
– taking care of oral hygiene, dentures;
– feeding frequently, but in small volumes;
– encouraging the patient to eat or feeding him;
– controlling body weight;
– controlling bowel movements;
– keeping nursing records.

Justification for implementing nursing interventions:
taking a thorough history will allow a detailed diagnosis of the problem. The correct conditions for taking meals, namely the position, a ventilated room, fixed meal times and their correct temperature and consistency, will allow the patient to gain pleasure from eating. In view of the patient's mental state and ailments, it is important that the diet take into account the patient's food preferences. It is also beneficial for the patient to be verbally encouraged to eat, as well as to be fed frequently but in small volumes. Monitoring body weight and bowel movements will help guide the patient's nutritional situation [10,17–19].
Evaluation of care outcomes and nursing interventions undertaken:
appetite has improved. The steps taken should be continued.

Nursing diagnosis 4:
constipation caused by long-term immobilisation in bed, manifested by difficult passage of stools.
Purpose of care:
normalisation of intestinal function.
Nursing interventions plan:
- interviewing the patient about past defaecation, duration of constipation, the patient's diet;
- pulse examination of the abdomen for the presence of faecal masses or bloating;
- application of a high-residue diet: grain products, fruits and vegetables;
- taking care of proper hydration of the patient;
- increasing physical activity in bed, as much as the patient's pain will allow: changing positions, abdominal massage;
- taking care of regular bowel movements, recommending attempting to pass stools five to ten minutes after meals up to about thirty minutes;
- use of rectal procedures: cleaning enema, rectal infusion of paraffin, glycerin or oil;

– ensuring intimacy and convenient conditions during defaecation;
– administration of laxatives according to the physician's order sheet;
– documentation of nursing actions.

Justification for implementing nursing interventions:
in order to plan measures to prevent constipation, a thorough patient history and abdominal palpation should be conducted. Increasing the intake of high-residue diet foods and proper hydration will soften the stool and have a positive effect on excretion. Physical activity in bed and abdominal massage accelerate intestinal peristalsis. Attempts at regular bowel movements can also be taken care of. Rectal procedures and laxatives irritate the intestinal mucosa and cause defecation [17,20,21].
Evaluation of care outcomes and nursing interventions undertaken:
constipation eliminated. The measures taken should be continued.

Nursing diagnosis 5:
excessive drying of oral mucous membranes as a result of dehydration, manifested by a burning sensation.
Purpose of care:
reduce feelings of dryness and moisturise mucous membranes.
Nursing interventions plan:
– systematic observation of the oral mucosa;
– frequent and thorough care of the oral cavity;
– prescribing mouthwash: using moisturising liquids, with an anti-inflammatory effect, herbal infusions;
– taking care of proper hydration of the patient;
– sucking on frozen pineapple and ice cubes;
– providing easy access to a glass of water at night;
– administering pain medication prescribed by the doctor.

Justification for implementing nursing interventions:
changes in the mucous membranes badly affect the functioning of many systems and contribute to various ailments, so they should be observed regularly. Oral care and rinsing help reduce the number of microorganisms in the mouth. Drinking beverages is responsible for hydration, and sucking on pineapple and ice cubes provides constant hydration. Care

should also be taken to ensure that the patient always has a glass of water at the bedside in case he or she wants a drink [22–24].
Evaluation of care outcomes and nursing interventions undertaken:
proper hydration of the mucous membranes has been restored.

Nursing diagnosis 6:
discomfort caused by reduced independence in activities of daily living resulting from dizziness and weakness, manifested by a deepening sense of disability.
Purpose of care:
reduce the discomfort associated with reduced independence and help with daily functioning.
Nursing interventions plan:
- assessing the patient's degree of independence;
- assisting the patient with activities with which s/he has difficulty;
- ensuring comfort and intimacy during bathing;
- establishing a rehabilitation plan with the physiotherapist and doctor;
- motivating the patient, providing support;
- providing assistive items: tapes, bed pull-up ladder.

Justification for implementing nursing interventions:
before doing anything, the patient's level of independence should be assessed. Assisting in activities in which he or she has a problem are intended to improve the patient's comfort. Hygienic activities, such as bathing, are very tiring, so we perform them only when the patient feels well. Rehabilitation is aimed at improving well-being and physical fitness. Motivation positively affects the patient's condition and the healing process. Facilities, such as bands and ladders, improve his/her comfort in bed [25,26].
Evaluation of care outcomes and nursing interventions undertaken:
the patient's self-perception has improved. The patient is trying to participate in daily activities.

Nursing diagnosis 7:
self-care deficit in the need for personal and environmental cleanliness due to low mood and weakness, manifested by the inability to wash, dry, and keep the surroundings clean.
Purpose of care:
assist in maintaining hygiene of the patient's body and environment.
Nursing interventions plan:
- toilet the body with soap and water and thoroughly dry the skin twice a day;
- performing toileting at fixed times of the day;
- observing the skin and mucous membranes during toileting;
- changing personal underwear and bedding;
- changing nappies when soiled;
- providing necessary utensils and assisting in performing oral toileting;
- encouraging people to take care of their own bodies and surroundings.

Justification for implementing nursing interventions:
by toileting the body and changing personal and bed linen at regular times, the patient's personal hygiene and order can be maintained. During toileting, it is also beneficial to wash the skin and mucous membranes to prevent them from drying out. Involving the patient in grooming activities is a good way to take care of his/her own condition [27,28].
Evaluation of care outcomes and nursing interventions undertaken:
hygiene of the patient's body and surroundings maintained.

Nursing diagnosis 8:
decreased mood due to advanced stage of illness, awareness of death and being in a hospice.
Purpose of care:
improving the patient's well-being and acceptance of the disease, since his current mood is manifested by poor well-being, and creating a friendly environment.
Nursing interventions plan:
- familiarising the patient with the topography of the hospice;
- familiarising the patient with the other patients in the room;

– enabling consultation with a psychologist and psychiatrist;
– enabling contact with the family;
– enabling conversation with the rest of the medical staff;
– explaining to the patient the nature of the disease, listening to his comments and answering his questions;
– using language that the patient understands during the conversation;
– ensuring silence and calmness;
– talking to a patient who is dying.

Justification for implementing nursing interventions:
familiarising the patient with the topography of the hospice and other patients will help him find his way in the situation placed before him. Consultation with specialists will allow the patient to understand his mental state, and contact with his family will reassure him. Conversation and control of the patient will allow quick intervention in a crisis situation. If necessary and if the patient is willing, there may be conversation and reflection on death [9,29–31].
Evaluation of care outcomes and nursing interventions undertaken:
there has been an improvement in the patient's well-being.

Summary

In the treatment of patients in the advanced stages of cancer, the cooperation of the interdisciplinary team plays a key role. The patient is an active participant in the nursing and therapeutic process. Priority is given to a holistic approach that takes into account the holistic condition of the patient and his/her family [32]. The terminal period is characterised by a gradual progression of the disease process despite treatment: periodic aggravation of complaints or the appearance of new ones. Exacerbation of physical symptoms usually causes unpleasant psychological reactions, worsening to a significant degree the quality of life of patients. The patient is often helpless in the face of the disease and is unable to cope on his/her own. During the hospice stay, the patient receives systematic, multifaceted support, such as talks, visits from clergy, family and a psychologist. A sense of security and belonging to society is provided. The disease significantly

affects the patient's functioning in society, making them reevaluate their life, subordinating it to the disease [33].

One of the most common symptoms with cancer is pain. It has a very significant impact on patients' lives, as it limits their functioning to a great extent. In their article, Blacharska-Krzanowska *et al.* define pain as a mixed pain syndrome, which can be somatic, visceral or neuropathic [34]. In most cases, it is the result of the interaction of multiple factors, such as inflammatory, neuropathic and ischemic processes, often localising to several sites. Identification of these factors is extremely important from a therapeutic perspective, enabling the use of appropriate treatments for effective pain relief. In the case of bone metastatic lesions, the pain usually develops gradually and is often described by patients as dull and well-localised in a specific area. It particularly intensifies during the night, which can be difficult for patients, making it difficult for them to sleep soundly.

The negative emotions of hospice patients appear particularly intense when the patient first faces the prospect of incurability and death. Patients often react with complete mental disorganisation expressed in some by inhibition, silence and confinement, in others conversely by agitation and complaints. In all, a mixture of intense feelings of anxiety, anger, depression and despair can be observed, occurring alternately and interspersed with flashes of hope. A patient's psychological adjustment to cancer can express itself on different levels, depending on the patient's personality, life experiences and, level of adjustment. Two extreme attitudes of adaptation are observed: active, manifested by a desire to overcome the disease, and passive, manifested by resignation [32]. Psychotherapy, individually tailored to improve the patient's condition, plays an important role in the treatment process. Often the patient may have difficulty accepting the diagnosis and adjusting to a new and difficult situation [35,36].

Among the difficult emotions that have a significant impact on the patient as well as staff is anxiety. This is a response to danger, to the possibility of losing an important value (health, life, etc.) or to instability – the prospect of being in an unknown situation. Inside a person, there is an existential fear of dying, of losing life, of being dead, of annihilation. The

fear of the unknown of one's own future is especially connected to anxiety about the future of the loved ones that one leaves behind. This feeling is intensified when the patient experiences incomprehension and isolation from those around him/her. It is a symptom that is rarely expressed in words. It has many causes: the personality of the patient, certain medications, hypoxic conditions, hypoglycaemia and pain or cessation of physiological activities. Along with anxiety, a feeling of anger is often born. Sometimes the feeling of anxiety turns into anger and this can develop into an attitude of rebellion. In a person at the end of their life, anger at the injustice of fate may arise, resentment and even rebellion against God may arise. The patient's right to be angry should be recognised. Many patients fall into a state of despondency, or prolonged sadness. Depression is a form of grief associated with passing away.

Currently, a large group of palliative care and hospice patients are patients with advanced prostate cancer. These are mostly men on hormone treatment [37]. Hormone therapy in the treatment of prostate cancer is mainly associated with its use in patients with advanced disease, where the cancer has spread beyond the prostate gland, with the goal of slowing tumour growth and relieving clinical symptoms of metastasis. Particularly in patients with bone metastases, the use of androgen deprivation therapy (ADT) often has beneficial effects, improving patients' quality of life, primarily by reducing or completely resolving pain associated with bone metastases [38].

The advanced stage of the disease is often accompanied by anorexia. Lack of appetite, severe restriction of meals or complete refusal to take them can be due to physical and psychological reasons. The former include pain, constipation, metabolic disorders, while the latter include anxiety, apathy, depression, sometimes mental breakdown and a desire to die sooner. ESPEN (European Society for Clinical Nutrition and Metabolism), defines malnutrition as "a condition resulting from a failure to absorb or consume nutrients, leading to a change in body composition […] and thus leading to impaired physical and mental activity of the body and adversely affecting the outcome of the underlying disease" [18, p. 303]. This problem can lead to nutrient deficiencies, such as vitamins, minerals

and proteins, which can affect the body's already severe health and function. A patient suffering from malnutrition experiences fatigue, weakness, concentration problems and lowered mood, which negatively affects the quality of life [18]. Daniluk [21], Walewska and Ścisło [24] define the same in their articles, referring to constipation and oral mucosal changes. The stress of the disease, pain and discomfort associated with constipation can affect the patient's overall emotional state, causing increased anxiety, lowered mood or a sense of reduced control over one's body and health. The same is true for lesions on the oral mucosa – a troublesome problem. This is why it is important for the medical team caring for a cancer patient to also take into account gastrointestinal problems and take appropriate measures to alleviate these symptoms.

The specificity of a nurse's work in caring for an oncology patient includes not only the physical aspects, but also emotional, psychological and social ones. The nurse is present with the patient, providing emotional and psychological support during the difficult period of cancer. S/he also places great importance on rehabilitative care, helping the patient maintain or improve his/her physical function and ability to perform daily activities. The nurse cares for the oncology patient in a holistic way, that is, taking into account all aspects of the patient's life and health. S/he takes care of the patient's comfort, alleviates symptoms of the disease and side effects of therapy, supports the patient in dealing with emotional challenges, provides necessary information, and plans and coordinates the care of the medical team [9]. All of this is aimed at ensuring that the patient has the highest possible quality of life during cancer treatment.

Conclusions

The analysis of nursing problems occurring in a patient with prostate cancer allowed the following conclusions to emerge:

– The main health problems/nursing diagnoses of a patient with prostate cancer relate to the effects of the disease; these include bone pain, swollen ankles, constipation, weakness and malnutrition.

- Prostate cancer affects the patient's quality of life depending on the stage of the disease and the treatment. Cancer in its final stage has a strong impact on the ability to perform daily activities and limits independence. To a large extent, it makes the patient feel depressed and unhappy.
- A patient's attitude toward cancer can be very complex and individual for each patient. It is influenced by factors such as age, gender, personality, life experiences, support from family and friends, as well as the stage of the disease and prognosis of treatment.
- The role of the nurse in the therapeutic team is to provide support and care in many aspects of the patient's life, including the emotional sphere.
- Caring for cancer patients requires nurses to be highly qualified and skilled, as well as capable of showing understanding and compassion.

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Chapter 9

The level of acceptance of the disease and the quality of life of patients with Parkinson's disease

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DOI: 10.48269/978-83-67491-19-8-09

Abstract
Introduction: More and more cases of Parkinson's disease are diagnosed each year. Currently, nearly 6 million people suffer from it. Those affected by the disease are forced to make changes in many areas of their lives.
Aim: The aim of this study is to identify the relationship between the assessment of the level of acceptance of the disease and the quality of life of patients with Parkinson's disease.
Material and methods: The study included 108 people with Parkinson's disease. The research tool was a self-administered survey questionnaire and questionnaires: WHOQOL-BREF and Acceptance of Illness Scale (AIS).
Results: Respondents experienced communication problems, fewer friends and social withdrawal. A large percentage of patients have problems related to sleep

disorders, mood swings and depressive disorders. More than 60% of respondents were dissatisfied with their quality of life and health. The level of acceptance of the disease was low (AIS: 16.81).
Conclusions: Parkinson's disease negatively affects every sphere of life. The level of acceptance of the disease and quality of life were at a low level and independent of the duration of the disease. There is no connection between quality of life and the degree of acceptance of the disease.
Key words: Parkinson's disease, quality of life, acceptance of the disease

Introduction

The progressive aging of the population is causing more and more cases of nervous system diseases and disorders, including Parkinson's disease (PD), to be diagnosed each year [1]. An estimated 6 million of the general population suffers from it, with 10% of cases diagnosed in people over the age of 65. In these people, symptoms usually appear around the age of 60. The annual incidence in Poland ranges from 5 to 25 per 100,000 people, representing 1.5% to 3% of the population [2].

The causes of the disease are not fully understood, but socioeconomic factors (age, sex, place of residence, toxins) and genetic factors are mentioned in its etiology [3]. Researchers also report that the process of nerve cell death can occur through such mechanisms as aging and oxidative stress [4].

PD is a progressive disorder of the central nervous system with a destructive effect on the nerve cells of the black matter. It is characterised by a slow progression of symptoms due to atrophy of the dopaminergic neurons [5]. PD is characterised by specific motor symptoms, such as motor slowing, postural abnormalities, muscle rigidity or resting tremors [6]. In addition, patients have a number of extraocular symptoms, which include speech, sleep, and autonomic (incontinence, constipation) disorders. Cognitive (mental retardation, impaired thinking) and sensory functions are also impaired. It is not uncommon for patients to experience psychiatric disorders, drug states or depression [7]. PD can be treated in several ways. The most important method is pharmacotherapy, which aims to support symptomatic treatment and also provide a better quality of life for patients by reducing bothersome discomforts [8]. An integrated, holistic

approach also includes treatment of other symptoms of the disease. Painkillers, therapy for dementia, depression, psychotic disorders, as well as sleep disorders and autonomic symptoms, and psychomotor rehabilitation should be introduced [9].

PD is chronic in nature. With its development and progressive disability, patients are forced to make changes in many areas of their lives and adapt to disadvantageous living situations [10]. Due to specific symptoms, visits to doctors, and multidirectional diagnosis, the process of diagnosing and treating PD significantly affects life comfort. The comfort of further life depends on the acceptance of the disease. For the greater the acceptance of the condition, the better the quality of life in the physical, social, socio-economic and psychological spheres [11]. The aim of this study is to identify the relationship between the assessment of the level of acceptance of the disease and the quality of life of patients with PD.

Material and methods

This study was conducted on a group of 108 people diagnosed with PD and residing at the Helcl Social Welfare Home in Krakow. One of the criteria for inclusion in the study was the informed consent of the patients. Another was their health status, which allowed them to answer the questions in the research tools. This study was approved by the Bioethics Committee of the Andrzej Frycz Modrzewski Krakow University (Resolution 37/2020 dated 06.04.2020 on opinion KBK/8/O/2020) and the Directorate of the Helcl Social Welfare Home in Krakow.

The research tool prepared for the study is two standardised questionnaires and one of the authors' own. The self-administered questionnaire includes questions about the duration of the disease and problems of functioning in the biological, physical, mental and social spheres, among others. The standardised survey tool is an abbreviated version of the WHOQOL-BREF form for assessing quality of life, as well as the Acceptance of Illness Scale (AIS), which aims to obtain information on the degree of acceptance of an illness. A version of the WHOQOL-BREF questionnaire by WHO combines questions regarding the physical, social, psychological

and also socio-economic spheres. In addition, it includes questions relating to a patient's individual and general perception of their quality of life and individual health. When analysing the standardised questionnaire, the total number of points from the four spheres of life mentioned above is taken into account. The higher the number of points means the better the quality of life. The scores for the domains are determined by calculating the arithmetic average of the items included in each domain.

The AIS scale is used to survey people with a variety of medical conditions. It is used to measure the degree of acceptance of the disease. The higher the level of the respondent's acceptance of the disease means the better the adaptation, and the less psychological discomfort in daily life. The AIS scale contains eight statements describing the negative consequences of poor health. The respondent completing the AIS questionnaire selects responses to each of the eight statements relating to the disease, giving them a point value from 1 to 5 ("strongly agree" – 1; "strongly disagree" – 5). The sum of the points is an overall measure of the degree of acceptance of the disease. The higher the number of points means the higher the level of acceptance of the disease [12].

The quantitative variables were analysed by calculating the mean, standard deviation, median, quartiles, minimum and maximum. The qualitative variables were analysed by calculating the number and percentage of occurrences of each value. The quantitative variables in the two groups were compared using the Mann-Whitney test. Comparisons in three or more groups were made using the Kruskal-Wallis test. The correlations between the quantitative variables were analysed using Spearman's correlation coefficient. The analysis assumed a significance level of 0.05. So, all p-values below 0.05 were interpreted as indicating significant correlations. The analysis was performed using the software R, version 3.6.2.

Results

A total of 108 people participated in the survey, of whom 55.56% were men and 44.44% women. The age of the respondents averaged 71.61 years and ranged from 59 to 96 years. The majority of patients

participating in the study had a vocational education (34.26%), and the fewest respondents had graduated from university: 18.52%. More than 75% of the respondents had been ill for more than six years. The vast majority of respondents – 92.59% – admitted that daily functioning with the disease in the biological sphere caused difficulties. More than 60% of patients had a problem when performing body toileting and preparing and eating meals, and 50.93% could not cope with getting out of bed on their own. In addition, 42.59% of respondents found it difficult to perform physical activities appropriate to their abilities, 37.96% could not cope with keeping their immediate surroundings tidy, and 32.41% of respondents needed help with dressing. Also, in the mental sphere, most patients (75%) admitted to the presence of problems such as concentration and sleep disorders (50.93%), mood swings (37.96%), anxiety and fear for their life and health (35.19%) and depressive states (32.41%). The vast majority of respondents (78.70%) believed that the disease had a significant impact on the deterioration of life in relation to the social sphere. These include difficulties in communicating with others (58.33%), reluctance to engage in the social life of the institution (48.15%), a reduction in the number of friends (37.96%), lack of visits or lower frequency of meetings with loved ones (32.41%), and less enthusiasm for social roles (27.78%). Deterioration in the socio-economic field was noted by 85.19% of respondents, and included deterioration in living conditions and financial problems – a total of 37.96% of respondents.

The WHOQOL-BREF questionnaire assesses the quality of life in six dimensions. The average rating of the quality of life made by the respondents was 2.36 points, which means that they rated their quality of life between bad and average. It was rated as very bad by 35.19% of respondents, and as bad by 23.15% of respondents. The average assessment of their own health made by the respondents was 2.11 points, which means that patients rate their health as unsatisfactory. Very dissatisfied with their current health situation are 36.11% of the respondents, and dissatisfied, are 31.48% of the respondents. Respondents rated their quality of life best in the environmental domain (10.80), and rated their quality of life slightly worse in the psychological domain (10.78) and social domain (10.12).

Respondents rated their quality of life worst in the physical domain (9.40) (Table 1).

Table 1. Areas of quality of life

WHOQOL-BREF	N	Average	SD	Median	Min	Max	Q1	Q3
Physical field	108	9.40	2.1	9	5	15	8	11
Psychological field	108	10.78	2.3	11	5	17	9	13
Social field	108	10.12	2.9	10	4	17	8	12
Socioeconomic field	108	10.80	2.2	10	5	16	10	12

Source: Own compilation of research.

The patient's degree of acceptance of the disease was examined. The average AIS score was 16.81 points, indicating that the respondents did not accept their illness. The level of acceptance was very low (Table 2).

Table 2. Degree of acceptance of the disease

AIS									
Point range	N	Average	SD	Average per question	Median	Min	Max	Q1	Q3
8–40	108	16.81	3.43	2.1	16	10	26	14.75	19

Source: Own compilation of research.

This analysis shows that the quality of life in the physical ($p = 0.008$) and socio-economic ($p = 0.009$) spheres is significantly higher in women than in men. The correlation is statistically significant. In the other domains – psychological ($p = 0.227$) and social ($p = 0.534$) – there is no correlation. Also, in the case of the evaluation of the perception of quality of life ($p = 0.781$) and perception of one's own health ($p = 0.634$), no correlation was shown ($p < 0.05$). No effect of age on the perception of quality of life ($p = 0.941$) or one's own health ($p = 0.753$) was observed. There are also no such correlations in individual domains relating to quality of life in the physical ($p = 0.49$), mental ($p = 0.85$), social ($p = 0.422$) and socioeconomic ($p = 0.479$) domains. The variable of marital status was also evaluated. The correlations turned out to be statistically insignificant. The correlation coefficient for perception of quality of life was $p = 0.811$, and perception of one's health was $p = 0.64$. There

was also no correlation between education and perception of one's own health and sense of quality of life. Therefore, it can be concluded that, apart from the significant relationship occurring between female gender and quality of life in the physical and socio-economic domains, no correlation was found in the other cases studied. Thus, the hypotheses that there is a relationship between the factors gender, age, marital status, education, and perceptions of patients' perceptions of their own quality of life, health, quality of life in the physical, social, socio-economic and psychological spheres were not confirmed.

There was also no correlation between disease duration and quality of life and the level of acceptance of the illness. Nor was there a correlation between disease duration and quality of life and level of acceptance of the condition.

The analyses show that there is no correlation between the duration of the disease and the perception of quality of life and one's own health in the four areas studied. Analysing the relationship between the level of acceptance of the disease and its duration, it turns out that as the years go by, the respondents' tolerance of the condition does not increase ($p = 0.903$) – no statistical correlation.

After analysing the data, it follows that there are no correlations indicating a correlation occurring between acceptance of the disease and the quality of life of respondents with Parkinson's (all $p > 0.05$). The acceptability level of the condition does not increase with the quality of life (Table 3).

Table 3. The relationship between disease acceptance and quality of life in patients with Parkinson's disease

WHOQOL-BREF	AIS
	Spearman's correlation coefficient
Perception of quality of life	r = -0.017, p = 0.862
Perception of own health	r = 0.061, p = 0.534
Physical area	r = -0.001, p = 0.994
Psychological area	r = 0.132, p = 0.173
Social area	r = -0.057, p = 0.556
Socio-economic area	r = 0.073, p = 0.452

Source: Own compilation of research.

Discussion

The literature on the subject describes a number of publications in which the authors have undertaken studies on the level of acceptance of illness and assessment of quality of life. The need for these studies is due to the rate of aging of the population, in which the presence of chronic conditions, such as oncological, cardiovascular, respiratory and musculoskeletal diseases, is of significant importance in daily functioning. Pain, numerous limitations and the need for assistance from others cause a lack of acceptance of the disease and a low assessment of the quality of life in each of the spheres, biological, psychological, social and also economic [12].

The results of our own study show that in patients with PD, quality of life is low, as is the level of acceptance of the disease. In addition, no correlation was observed between acceptance of the condition and quality of life in patients with Parkinson's. The duration of the disease also did not affect greater acceptance of the condition. The study found that women rated their quality of life better in the physical and socio-economic spheres. There was no significant correlation between the other socio-demographic factors and quality of life and acceptance of the disease.

Undoubtedly, PD reduces patients' quality of life, as shown by numerous studies. For example, Lorencowicz *et al.* showed in their study that respondents affected by Parkinson's had great difficulty in performing household chores such as laundry, cleaning and meal preparation [13]. In addition, lack of education contributed to a faster decline in functional ability caused by PD. The differences found were close to statistical significance ($p = 0.05$).

Our study did not show such statistical significance between education and quality of life. The study by Lorencowicz and *et al.* shows that patients who run their households alone are slightly more (no statistical significance $p = 0.50$) affected by dysfunction resulting from functional decline than those living with family. Also, with regard to the mental sphere, Lorencowicz *et al.* showed that PD has a devastating effect on the patient's mental state. This is reflected in the fact that as many as nearly two-thirds of the respondents (64%) showed greater or lesser severity of depressive

symptoms. In their study, they also showed the respondents' problems with memory (93.33%), limitations in life activities and a reduction in their range of interests (90.33%). In addition to the above, in the study by Lorencowicz *et al.* respondents admitted that the disease reduces their motivation to get out of the house and meet with friends (78%), contributes to lower economic status (73.33%) and lower mood (68%). It is noteworthy, however, that in this study the majority of patients affected by PD were satisfied with their life (69.33%) and appreciate its value (68%) [13]. This is in contrast to our own study, where the majority of respondents rated their quality of life as very bad or bad.

There are many theories of quality of life in the literature, which are sometimes difficult to define. Certainly, quality of life is a multidimensional and interdisciplinary concept, combining important areas of life. Studies have confirmed that patients with PD have a reduced quality of life. In the study by Lorencowicz *et al.*, despite the positive assessment of quality of life by those surveyed, it was also demonstrated that PD negatively affected all the components of quality of life studied. In addition, Lorencowicz *et al.* showed a significant positive correlation between the level of functional ability and the following components of the quality of life assessment: mobility ($r = 0.74$), activities of daily living ($r = 0.54$), emotional well-being ($r = 0.36$), and cognitive function ($r = 0.27$) and communication. This analysis also indicates that the higher the level of education, the less devastatingly PD affects patients' quality of life. Lorencowicz *et al.* shows that depressive symptoms are one of the factors that reduce the quality of life of respondents in PD [13]. In our study, 32.41% of respondents indicated that the disease influenced the development of depression. However, the effect of depression on patients' quality of life was not studied.

An assessment of the quality of life of patients with PD was also undertaken by Cholewa *et al.* This study found that those who participated in the process of physical rehabilitation declared a better quality of life in comparison to non-exercisers, which may indicate the important role of rehabilitation activities as a factor in delaying the disease process and thus prolonging the ability to perform professional work.

In addition, it has been shown that appropriate physiotherapeutic management, correlated with the professional work of people with PD, can delay the severity of disease symptoms. In their study Cholewa *et al.* showed that people with PD who work professionally and participate in the process of physical rehabilitation have a better declared level of quality of life compared to both the working non-exercise group and the non-exercise group. Cholewa *et al.* concluded on the basis of their study that working professionally, proper education of the patient, his or her environment, and physiotherapy can significantly reduce fear of the future. Vocational activity and participation in appropriately planned physiotherapy activities reduce the severity of symptoms and improve the quality of life of people with PD. Cholewa *et al.* also showed that the quality of life of people with PD is determined by occupational work and participation in the process of physical rehabilitation [14].

It seems important to cite the results of other authors who have examined the level of quality of life in patients suffering from other chronic conditions.

An example of such a study is presented by Chrobak-Bień *et al.*, who surveyed a group of fifty people with Crohn's disease. The respondents voluntarily completed the WHOQOL-BREF and AIS questionnaire. Analysis of the survey showed that respondents' acceptance of their disease significantly affected the quality of life with this chronic condition. Patients who accept their disease function better in the emotional, physical and professional spheres. Acceptance of the disease has a significant impact on the quality of life of patients with this chronic disease [15]. In comparison, no effect of disease acceptance on improving quality of life was observed in our study.

Another example would be the study by Zielińska-Więczkowska *et al.* on the topic of psoriasis. In 101 respondents, a high level of acceptance of the disease was found, which affected functioning mainly in the psychological and physical spheres, and slightly worse in the social and societal domains. The overall quality of life was rated as good by the respondents, and the average acceptance of the disease was 30.37 points (definitely higher in men than in women, which was significantly influenced

by the visual aspect) [16]. Our own research, on the other hand, showed a smaller group of people with a high level of acceptance of the illness. The overall level of acceptance of the disease was very low. In contrast to the study by Zielinska-Więczkowska *et al.* in their own research, it was women who experienced a better quality of life in the environmental and physical domains.

PD is a condition that affects not only the motor zone, but also the mental zone. Coexisting neuropsychiatric conditions have a huge impact on the course of the disease itself, as well as on the quality of life of the patient and his or her loved ones.

Conclusions

The considerations undertaken in this study indicate the negative impact of PD on the quality of life of patients. Among other things, the study found that:

- Patients with PD have a worsening quality of life in each of the domains studied, namely biological, environmental, social and psychological.
- There is a correlation between specific domains of quality of life and gender: women rated their quality of life better in the physical and environmental domains.
- The level of acceptance of PD in nursing home care patients was low and independent of its duration.
- Both the quality of life and the level of acceptance of the disease of nursing home residents with PD were low, but no effect of the level of acceptance of the disease on quality of life was observed.

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Chapter 10

The relationship between self-efficacy and health behaviours and the level of knowledge of breast cancer prevention among professional nurses

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DOI: 10.48269/978-83-67491-19-8-10

Abstract
Introduction: Breast cancer is the most frequently diagnosed cancer in Poland. It develops slowly, very often without any symptoms for a long time. The key element in the prevention of breast cancer, which affects the rate of incidence, is women's knowledge of the disease and participation in screening tests.

Aim: The purpose of this study is to assess the relationship between the prevalence and intensity of health behaviours and self-efficacy and the level of knowledge about breast cancer prevention in a group of professional nurses.
Material and methods: The study involved 125 nurses employed at the St. John Paul II Hospital in Krakow. Standardised tools were used in the study: Generalized Self-Efficacy Scale (GSES), Health Behavior Inventory (HBI) and a self-designed questionnaire assessing knowledge about breast cancer prevention.
Results: Nurses with higher education presented a higher level of knowledge regarding breast cancer prevention. Women with a high intensity of health behaviours in the preventive domain showed a better knowledge of breast cancer topics. Similarly, nurses characterised by a strong sense of self-efficacy presented a higher level of knowledge in this area.
Conclusions: Almost half of the nurses surveyed presented a good level of knowledge about breast cancer prevention. The severity of health behaviours was rated as average, slightly higher in preventive behaviours and lower in terms of health practices. The stronger the sense of self-efficacy, the higher the level of knowledge and the higher the intensity of health behaviours.
Key words: breast cancer, prevention, health behaviours, self-efficacy, nurses

Introduction

Breast cancer is the most common type of malignant tumour among women in Poland. Despite the dynamic progress of medicine, a constant increase in the number of cases has been observed for many years. Data from the Polish National Cancer Registry indicate that in 2020 breast cancer and gynaecological cancers accounted for a total of 37% of all cancer cases among Polish women. The diagnosis of breast cancer in Poland is heard by more than 22,000 women every year, and in five to ten percent of them the cancer is not diagnosed until an advanced stage [1]. Diagnosing the disease at an early clinical stage allows for quicker treatment and thus a reduction in the number of deaths due to this disease. A key element in breast cancer prevention that reduces the incidence and mortality rate is women's knowledge of the disease and participation in screening tests. OECD data indicate that Poland has one of the worst results in the EU when it comes to women's willingness to undergo screening tests – mammography [2]. In order to improve access to prevention and to encourage more women to undergo tests, the Coalition "Together for Women's Health" was established. The initiator of its

creation is Polish Chamber of Commerce "Polish Pharmacy", the Onko-Cafe – Together Better Foundation, the OmeaLife Foundation and the association Polish Amazons Social Movement. Their task, apart from prevention, is to teach women health-promoting attitudes and cooperate with doctors in terms of access to modern treatment methods [3].

The purpose of this study is to assess the relationship between the prevalence and intensity of health behaviours and self-efficacy and the level of knowledge of breast cancer prevention in a professional group of nurses.

Material and methods

This study was conducted between February and April 2020 among 125 women employed as nurses at the St. John Paul II Hospital in the city of Krakow. The study used the diagnostic survey method, the research tools being two standardised questionnaires: the Generalized Self-Efficacy Scale (GSES) according to Schwarzer and Jerusalem adapted by Juczyński, and the Health Behavior Inventory (HBI) by Juczyński, as well as a questionnaire of his own authorship, containing vital data and questions regarding nurses' knowledge about breast cancer prevention. The GSES scale measures the strength of an individual's overall conviction about the effectiveness of coping with problematic situations and beliefs. The scale consists of ten statements that the respondent rates as true or false. The sum of the points obtained is converted on the sten scale: scores from one to four sten indicate low, from five to six average, and from seven to ten sten high self-efficacy. The HBI was used to assess health behaviours, consisting of twenty-four statements describing health-related behaviours. Taking into account the frequency of individual behaviours selected by the respondents, the overall intensity of behaviours that promote health and the degree of intensity in four domains of health behaviours, i.e. proper eating habits, preventive behaviours, health practices and positive mental attitude are determined. The sum of all points ranges from twenty-four to one hundred twenty points (the higher the score, the greater the intensity of health behaviours).

The overall HBI result was converted into stens, in accordance with the standards given in the key. Sten scores from one to four mean low, from five to six average, and from seven to ten high intensity of health-related behaviours. For the four individual HBI domains, there are no norms that would allow the results to be interpreted as low, high or average. However, the results of each domain were interpreted thanks to the calculated average obtained from the appropriate questions translated into a five-point scale used in the HBI [4].

To examine the nurses' level of knowledge about breast cancer, the author's questionnaire included sixteen questions that allowed the respondents' knowledge to be verified. Each respondent could score a maximum of twenty-eight points (one point for each correct answer, zero points for each incorrect answer). The higher the sum of points obtained, the higher the level of knowledge of the respondents; the number of points below fourteen indicated an insufficient level of knowledge, fourteen to twenty points a sufficient level, twenty-one to twenty-five points a good level, and above twenty-five points a very good level of knowledge.

The statistics were analysed using R, version 4.0. Quantitative variables in two groups were compared using the Mann-Whitney test, and in three or more groups using the Kruskal-Wallis test. When statistically significant differences were detected, a post-hoc analysis was performed using Dunn's test. Correlations between quantitative variables were analysed using Spearman's correlation coefficient. A level of $p \leq 0.05$ was considered statistically significant.

Results

The research included 125 professionally active nurses. The average age of the respondents was 38 years. The largest groups were women aged 22 to 30 and 41 to 50, while the smallest group was women aged 51 to 60 (Table 1).

Table 1. Age in the study group

Age	n	%
22–30 years	41	32.8%
31–40 years	25	20.0%
41–50 years	37	29.6%
51–60 years	22	17.6%

Source: own compilation of research.

The analysis of the level of education indicates that 56.8% of nurses had a specialisation, including 50.4% with higher education and 6.4% with secondary education. The remaining women had higher education without specialisation (39.2%) and secondary education (4%) (Table 2).

Table 2. Education level in the study group

Educataion	n	%
Secondary	5	4.0%
Secondary with specialisation	8	6.4%
High	49	39.2%
High with specialisation	63	50.4%

Source: own compilation of research.

As for the place of residence, the respondents' indications were almost evenly distributed: 50.4% of the respondents lived in the countryside, and 49.6% in the city (Table 3).

Table 3. Place of residence in the study group

Place of residence	n	%
City	62	49.6%
Countryside	63	50.4%

Source: own compilation of research.

The respondents were asked about the presence of breast cancer in the female line in the family, 17.6% of respondents indicated that such cancer had occurred in the family, and 55.2% indicated the presence of another type of cancer.

The assessment of the level of knowledge of nurses on breast cancer prevention indicates that almost two thirds of the respondents have a good (49.6%) and very good level of knowledge (9.6%) in this area, but as many as 40% have only a sufficient level of knowledge (Table 4).

Table 4. Level of knowledge about breast cancer prevention in the study group of nurses

Level of knowledge	n	%
Inadequate	1	0.8%
Sufficient	50	40.0%
Good	62	49.6%
Expertise	12	9.6%

Source: own compilation of research.

The level of knowledge was significantly higher in the groups with higher education than in the group with secondary education (Table 5).

Table 5. Correlation between education and level of knowledge

Level of knowledge [points]	Education			P
	Secondary or without specialisation (N = 13) – A	Higher (N = 49) – B	Higher with specialisation (N = 63) – C	
mean ± SD	19.27 ± 3.64	22.16 ± 2.9	21.73 ± 3.07	p = 0.025
Median	18.4	22.2	22.1	
Quartiles	16.45–21	20.5–24.4	19.67–23.75	B,C > A

p – Kruskal-Wallis test + post-hoc analysis (Dunn's test)

Source: own compilation of research.

Next, the overall intensity of health behaviours was assessed in the study group – more than one in three respondents showed an average intensity of health behaviours (36.8%), every third had a low intensity (33.6%), and almost 30% had a high intensity of health behaviours (Table 6).

Table 6. Intensity of health behaviours in the study group

HBI – number of points Women	Interpretation	n	%
24–77	Low	42	33.6%
78–91	Average	46	36.8%
92–120	High	37	29.6%

Source: own compilation of research.

The analysis of the evaluation of health behaviours in all domains of the HBI questionnaire, i.e. proper eating habits, preventive behaviours, positive mental attitude and health practices, is between "from time to time" and "often" (Table 7).

Table 7. Average frequency of behaviours in individual IZZ domains in the study group

HBI	N	Data gaps	Mean	SD	Median	Min	Max	Q1	Q3
Proper eating habits	125	0	3.43	0.74	3.5	1.67	5	3	4
Preventive behaviour	125	0	3.55	0.75	3.5	1.67	5	3	4.17
Positive mental attitude	125	0	3.48	0.65	3.5	1.67	4.67	3	4
Health practices	125	0	3.27	0.72	3.33	1.33	4.67	2.83	3.83

Source: own compilation of research.

No correlation was observed between the general result of the HBI and the level of knowledge about breast cancer prevention among professional nurses (Table 8), but such a correlation occurred between the level of knowledge and the domain of preventive behaviours ($p = 0.089$) (Tables 8, 9).

Table 8. Correlation between the overall IZZ score and the level of knowledge

Features	Spearman correlation coefficient	p
HBI overall score and Knowledge level	0.153	p = 0.089

Source: own compilation of research.

Table 9. Correlation between preventive behaviours and level of knowledge

Features	Spearman correlation coefficient	p
Preventive behaviour and Level of knowledge	0.207	p = 0.021

Source: own compilation of research.

The assessment of self-efficacy in the group of nurses studied indicates high (60%) and medium (32%) self-efficacy; only less than one in ten respondents had a low level of self-efficacy (Table 10).

Table 10. Self-efficacy in the study group of nurses

GSES – number of points	Interpretations	n	%
10–24	Low self-efficacy	10	8.0%
25–29	Average sense of self-efficacy	40	32.0%
30–40	High sense of self-efficacy	75	60.0%

Source: own compilation of research.

A statistically significant relationship was observed between self-efficacy and the level of knowledge about breast cancer prevention; the stronger the self-efficacy, the higher the level of knowledge of the respondents (p = 0.029) (Table 11).

Table 11. Correlation between self-efficacy and level of knowledge

Features	Spearman correlation coefficient	p
GSES and level of knowledge	0.195	p = 0.029

Source: own compilation of research.

Attention was also paid to the existence of a relationship between self-efficacy and health behaviours in general and in individual domains; the stronger the sense of self-efficacy, the greater the intensity of health behaviours in general and in individual domains (Table 12).

Table 12. Correlation between the HBI score and self-efficacy

Features	Spearman correlation coefficient	p
Overall score of HBI and GSES	0.397	$p < 0.001$
Proper eating habits and GSES	0.327	$p < 0.001$
Preventive behaviour and GSES	0.376	$p < 0.001$
Positive mental attitude and GSES	0.414	$p < 0.001$
Health practices and GSES	0.197	$p = 0.028$

Source: own compilation of research.

Discussion

Despite the dynamic progress of medicine, a continuous increase in the number of breast cancer cases has been observed for several years. The key element affecting the reduction of morbidity and mortality due to this disease is oncological prevention. Authors on the subject have been emphasising insufficient knowledge of breast cancer prevention among women for years. Currently, the main problem is the lack of participation in preventive tests [2]. In the group of nurses surveyed, the burden of cancer was found; 17.6% of the nurses indicated that their close family had breast cancer in the female line, and 55.2% indicated the occurrence of another type of cancer.

On the basis of the analysis of the results of our own research, it can be concluded that less than two thirds of the nurses surveyed (59.2%) have a good and very good level of knowledge of breast cancer prevention, but as many as 40% of these women have only sufficient knowledge of the subject. Compared to women from outside the medical community, these nurses demonstrated a higher level of knowledge about breast cancer prevention. In the research conducted by Ślusarska *et al.*, the knowledge of more than half of the respondents (50.7%) was rated as satisfactory, 10.4% of the respondents received a good rating, and as many as 38.9% received an unsatisfactory rating. Research indicates that there is a relationship between the knowledge of nurses surveyed and their level of education ($p = 0.025$). Nurses with higher education have a significantly higher level of knowledge about breast cancer prevention than those with secondary education. However, this relationship is not statistically significant

(p = 0.313). Similar results were obtained by Ślusarska *et al.* [5], the authors also point out the relationship between women's level of knowledge about breast cancer prevention and their level of education.

The level of knowledge of nurses was assessed according to knowledge of such things as the risk factors for breast cancer. The respondents most often mentioned factors such as female gender (100%), breast cancer in the family (100%), lack of physical activity (100%), long-term use of oral contraception or hormone replacement therapy (98.4%), late motherhood, childlessness (96.8%) or early age of menarche (61.6%). Late menopause (26.4%) and alcohol consumption (17.6%) was mentioned much less frequently. Similar relationships are indicated in studies by other authors: in the study by Smoleń and Dobrowolska [6], the nurses surveyed considered the main risk factors to be a family history of cancer (91.3%), taking hormonal drugs (72.2%), and ionising radiation (71.2%); Ślusarska *et al.* [5] indicate genetic factors (88.9%), history of breast cancer (66%) and age (54.3%), and Lewandowska *et al.* include genetic factors among the most frequently indicated risk factors, such as burden (64%), use of oral hormonal contraception (50%) and being overweight (30%) [7].

Another important element from the point of view of breast cancer prevention is knowledge of diagnostic methods that enable early diagnosis of pathological changes in the mammary gland, and thus early initiation of treatment of the disease. Breast self-examination is the cheapest independent method enabling the detection of pathological changes in the mammary gland. Our research shows that 90.4% of nurses know that this examination should be started as early as the age of 20 and should be carried out once a month (80.0%) two to three days after menstruation (74.4%) and in postmenopausal women always on the same day of the month (65.6%). Tomaszek *et al.* [8] indicate that the nursing students they surveyed knew the age at which breast self-examination should begin, but only 60% of them indicated the correct date for performing it. A similar relationship was indicated by Ślusarska *et al.* [5]. Here, too, 62.5% of women indicated that the test should be performed after the end of menstrual bleeding. However, the analysis by Lewandowska *et al.* [7] shows that only half of the respondents knew the proper time to conduct the examination.

Breast ultrasound examination is a complementary examination enabling the diagnosis of even the smallest changes in the mammary gland. Our research indicates that 78.4% of nurses know that this examination should be performed on women aged between 20 and 40. Similar results were obtained by Ślusarska *et al.* [5]: 61.1% of respondents believed that a breast ultrasound should be performed in women before the age of 40.

Mammography, which is the gold standard in the diagnosis of breast cancer, allows the detection of changes in the fatty tissue of the breast that are not palpable. 70.4% of the women surveyed were aware that mammography should be performed after the age of 40 and that this examination in Poland is free of charge for women between 50 and 69 years of age (80%). Only two thirds of respondents correctly indicated that this test should be performed every two years. Comparable results were obtained by Ślusarska *et al.* [5]. More than two thirds of the respondents (79.2%) correctly indicated the age at which the examination is recommended, but only half of the respondents (51.4%) knew how often the examination should be performed. A similarly low result was obtained by Tomaszek *et al.* [8].

Various categories of health behaviours are modifiable factors that influence human health, and one of the important factors determining human behaviour is self-efficacy. Self-efficacy is the strength of the belief that one is able to carry out a specific action or achieve a set goal. A person's expectations regarding self-efficacy may determine whether or not they undertake specific behaviours, including those related to their own health [4]. The analysis of our results indicates that the level of intensity of health-related behaviours among the nurses surveyed varies. Nurses were characterised by average (36.8%) and high (29.6%) intensity of health-related behaviours, but as many as one third (33.6%) of respondents demonstrated a low level of these behaviours. Similar results were obtained by Bojakowska *et al.* [9], but they examined the intensity of health behaviours in women before and after the diagnosis of breast cancer. Before the diagnosis of "breast cancer", women showed a low level of intensity of health behaviours, while after the diagnosis of breast cancer, more than half of the women showed a high level of intensity of health behaviours. The study

also allowed for the assessment of individual categories of health behaviours. Nurses received the lowest ratings in the domain of health practices (3.27) and proper eating habits (3.43), with positive mental attitude (3.48) and preventive behaviours (3.55) ranking slightly higher. A similar distribution of answers was obtained by Gujska *et al.* [10] when examining the health behaviours of nursing students in the field of cancer prevention. The analysis of this author's results shows that preventive behaviours were rated the highest (3.50), eating habits (3.49) and positive mental attitude (3.47) were rated slightly lower, while health practices were considered the least intense (3.22). The study indicates that the domain of preventive behaviours depend on the nurses' level of knowledge regarding breast cancer prevention ($p = 0.021$). Research by other authors does not confirm the existence of such a relationship [10,11].

The analysis of the results of this study shows a high generalised sense of self-efficacy among 60% of nurses, average among 30%, and only 8% of respondents have a low sense of self-efficacy. There was also a relationship between self-efficacy and the level of knowledge about breast cancer prevention in the study group ($p = 0.029$). A high sense of self-efficacy concerned respondents with a higher level of knowledge. The study by Andruszkiewicz *et al.* [12] conducted in a group of nurses indicates a moderate sense of self-efficacy, and there is no relationship with the level of knowledge. Later in the study, a statistically significant correlation is shown between self-efficacy and the intensity of health behaviours ($p < 0.001$). The stronger the self-efficacy, the greater the intensity of health behaviours in general and in individual domains. The influence of self-efficacy on health behaviours is also indicated by Baumgart *et al.* [13].

Despite a strong sense of self-efficacy, health behaviours and satisfactory knowledge of breast cancer prevention, the nurses surveyed often do not follow the recommendations resulting from the principles of breast cancer prevention and undergo tests unsystematically. This may be a cause for concern, considering the fact that 17.6% of them indicated that a close family member in the female line has had breast cancer, and 55.2% indicated the presence of another type of cancer. Due to their

professional functions in the field of education and health promotion, nurses' knowledge of breast cancer prevention should be above average, and they themselves should set an example and be a source of knowledge for other women.

Conclusions

The level of knowledge of the nurses surveyed about breast cancer prevention may be alarming – as few as less than 60% of them had a good and very good level of knowledge on this subject, but as many as over 40% had only a sufficient level. Nurses with a higher level of education had a better level of knowledge in the field of breast cancer prevention.

The intensity of health behaviours in general and in individual domains in the study group of nurses was at an average level. A relationship was observed only between the nurses' level of knowledge about breast cancer prevention and the HBI domain of preventive behaviours: the higher the level of knowledge, the greater the intensity of preventive behaviours.

A high level of generalised self-efficacy was found in the study group of nurses. There was also a relationship between the sense of self-efficacy and the level of knowledge about breast cancer prevention in the study group: the stronger the sense of self-efficacy, the higher the level of knowledge of the nurses. Such a relationship also occurred between self-efficacy and health behaviours in general and in individual domains: the stronger the self-efficacy, the greater the intensity of health behaviours.

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Chapter 11

Parents' knowledge and awareness of development and care in the case of postural defects in children

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DOI: 10.48269/978-83-67491-19-8-11

Abstract

Introduction: Healthy child development is vital for their future. Neglecting care can harm development and physical health. Parental awareness and early detection of abnormalities can prevent later issues. Our study aims to assess parental knowledge of childcare, development, and posture defects, considering factors such as education, residence, parental age and attendance at antenatal classes.

Material and Methods: We used a self-administered questionnaire with demographic questions, questions that assessed knowledge, and questions about parents' childcare practices, involving 190 participants.
Results: Our research reveals insufficient parental knowledge of child development and care, with only 25.3% showing a high level of understanding and 30% showing the lowest. In childcare knowledge, 44.7% had a high level, while 33.2% had the lowest. In terms of causes of posture defect, 81.6% attributed them to incorrect posture.
Conclusions: Continuous education and the promotion of antenatal schools are essential in preparing parents to conscientiously and safely support their child's proper development.
Key words: childcare, parental awareness, child development

Introduction

Understanding child development allows us to monitor whether a child's development is progressing correctly. In the case of any deviations from the norm, it is essential to consult a specialist and obtain appropriate support. Parental education is a critical factor that helps parents prepare for pregnancy, monitor prenatal development, and support their growing child both before and after birth [1]. Having knowledge about infant care, changing nappies, carrying methods, or even changing their position during the day is incredibly important. Incorrectly performing these activities can negatively affect a child's health and disrupt the mechanics of hip and shoulder joints. As the child grows, there are many changes in the musculoskeletal system. This can lead to the development of postural problems, which, if detected in the early stages, can be corrected [2].

Normal motor development in a child is the ability to perform various activities that enable gradual independence in daily life. Developmental disorders can be noticed both before birth and in the first few months of life. Deviations from the norm can manifest as a lack of age-appropriate skills or improper movement execution. Incorrect responses to stimuli or the absence of expected reactions are also signs of a developmental issue [3]. Stimulating a child is an essential factor in shaping a child's motor skills. Several caregiving activities that an infant undergoes affect their development. These include carrying methods, bathing, changing nappies,

the way they are lifted, fed, and the positions they are placed in. Every parent may have a different way of carrying their child. However, it is essential to ensure that the positions a child assumes during these activities are appropriate for their developmental stage. It is crucial to distribute the weight evenly. During carrying, one should avoid positions that allow the child to lean too far backwards. The hip joints should be externally rotated, abducted, and slightly flexed. The child's head should be in line with their torso, and their upper limbs should be close to the front of the chest. In the newborn and early infancy periods, the child should be kept in a horizontal position, gradually transitioning to an upright position as their head control improves. The positions and method of lifting the infant have a significant impact on their motor development. For proper development, it is recommended to change the child's position and stimulate them from both the right and left sides. This helps maintain symmetry in movements and learn proper weight transfer. Varying the child's orientation relative to the source of light, the sound of the mother, and toys is also essential. During sleep, parents should ensure different positions such as lying on the back, stomach, and sides. Nappies should be changed carefully to correctly align the child's hip joints and avoid improper movements. Lifting and the dressing process should be performed with care for the child's shoulder joints. It is advisable to turn the child on their sides to maintain symmetry and prevent the risk of injury. When dressing the child, parents should not force them but dress them gently. Ensuring the proper position and caregiving techniques is crucial for a child's proper development [4,5].

Body posture is a personal characteristic that changes over time and is related to well-being. Correct posture ensures stability, smooth movements, and the absence of pain. It is evaluated on the basis of the curves of the spine, head positioning, pelvis, legs, and feet, as well as the chest. Postural problems in children result from various musculoskeletal disorders and are visible when standing. Screening examinations have revealed that one of the most common health problems in children is postural abnormalities. These problems are influenced by environmental factors such as a sedentary lifestyle, lack of physical activity, and heavy backpacks [6–9].

Due to its supportive function, the human spine allows an upright body posture to be maintained. In the sagittal plane, the spine is not straight and exhibits characteristic curves. Starting from the upper part of the spine, there is cervical lordosis, thoracic kyphosis, lumbar lordosis, and sacral kyphosis. In lordosis, the curve is convex anteriorly, while kyphosis is convex posteriorly [6,10].

One of the most well-known spinal disorders is scoliosis, a structural deformation of the spine that occurs in three planes. In the frontal plane, there is lateral deviation, and in the transverse plane, vertebral rotation occurs. In the sagittal plane, it leads to an increase or decrease in lordosis or kyphosis, depending on the affected segment. Scoliosis brings many adverse changes to the body, affecting the musculoskeletal system, cardiovascular and respiratory systems, and the functioning of internal organs [7].

Thoracic hyperkyphosis is a spinal deformity commonly referred to as rounded shoulders. It is characterised by protruding shoulder blades, forward bending, and a dropped chest. This condition can have various causes, such as poor posture, vision problems, low self-esteem in children, conditions like Scheuermann's disease, rickets, or joint inflammation. Weakened muscles in the thoracic region are a major contributing factor to its development.

Rounded shoulders can also be caused by a general kyphosis of the spine. On the other hand, an increase in physiological lumbar lordosis leads to a condition informally called hollow back, which can affect the functioning of the internal organs. Lumbar hyperlordosis can be congenital or acquired and is often associated with muscle dystonia, which weakens some muscles and excessively contracts others.

If a child loses the physiological spinal curves, it is referred to as a postural problem known as flat back. This increases the risk of scoliosis and weakens the spine, potentially leading to degenerative changes. A child with flat back may appear to have a protruding head and a flattened chest. Some muscles, like the chest and buttock muscles, are weakened, while others, such as the neck and buttock muscles, are excessively shortened [11].

Disorders of the lower extremities can significantly affect the alignment of the pelvis and spine. These disorders can affect both knee joints and feet.

In the knee joint area, we can distinguish between "knock-knees" and "bowlegs". Knock-knees occur when there is an open outward angle between the axis of the thigh and the axis of the lower leg, and the distance between the inner ankle joints, with the knee joints together, is more than five centimetres. However, it is important to remember that in children, knee knocking is physiological at around four years of age. If knee knocking persists beyond this age, it may be considered pathological. The child's gait is then incorrect, the child's feet are widely spaced, and the knees rub against each other. The stability of the child's knee joint is also compromised. If any irregularities are observed in a child, it is advisable to consult a physiotherapist or a doctor to take appropriate therapeutic measures. The other postural problem concerning the knee joint is "bowlegs". This occurs when the angle between the thigh and shin axis is inwardly open. The distance between the knee joints, with the child's inner ankle joints together, indicates whether the child has this problem. If this distance reaches five centimetres, it indicates pathology and requires consultation. As with knock-knees, it is important to consider that knee bowing is a physiological phenomenon at certain stages of a child's life. In infancy, children's knee joints exhibit physiological bowing, which reaches its highest point between the sixth and twelfth month of life. In the next stage of development, as the child begins to move independently, the degree of bowing decreases. Around the age of three to four, it transitions to a knocked-knee or correct position [8,12].

A properly formed and functioning foot typically has three points of support, including the head of the first metatarsal, the head of the fifth metatarsal, and the heel bone's tuberosity. The arch of the foot is formed by three arches: the longitudinal medial arch between the first metatarsal and the heel, the lateral longitudinal arch between the fifth metatarsal and the heel, and the transverse arch extending between the first and fifth metatarsals [13].

Among foot deformities in children, there are several types, including flat feet, high arches, clubfoot, and in-toeing. Flat feet are characterised by the lowering of the longitudinal arch of the foot and can result from improper functioning of the ligament-muscle apparatus or inadequate preparation to bear weight. Flat feet in infants and young children are physiological, but after the age of three, they may be considered pathological. High arches, on the other hand, represent the opposite of flat feet, with the plantar arch deepened. This deformity occurs in a supine position and forms an angle of approximately twenty-five to thirty degrees in relation to the heel axis. It is important to note that proper care and possible correction of foot problems in children are important to ensure proper development and future foot function. Another foot problem in children is clubfoot, characterised by a three-dimensional deformity. It involves the foot being positioned in adduction, restricting outward foot movement, and the heel being turned inward. This deformity is often associated with equinus positioning, causing the heel to be higher than the forefoot, and the foot is in a dorsiflexed position. Another issue is the "pigeon-toed" feet, where the foot is positioned in dorsal flexion. The prognosis depends on the severity of this deformity. In some cases, it may improve spontaneously as the child strengthens their calf muscles. However, in other cases, surgical treatment may be necessary. Monitoring a child's foot development and consulting a doctor or paediatric orthopaedic specialist if necessary is crucial for an accurate diagnosis and potential treatment [13,14]. Our study aims to assess parental knowledge of childcare, development, and posture defects, considering factors such as education, residence, parental age, and attendance at antenatal classes.

Materials and Methods

A total of 190 individuals who were parents of children of various ages residing in Poland participated in the study. The research was conducted from December 2020 to April 2021. To carry out the study, a custom

questionnaire was employed, which was distributed electronically. Each participant voluntarily completed the questionnaire on their own electronic device while remaining anonymous. Ethical approval for the research was granted by the Bioethical Committee at the Wroclaw Medical University (Approval No. KB-281/2021).

The classification criteria were being a parent and having a general knowledge of their child's development.

The research method used was a custom questionnaire. The questionnaire consisted of fifteen sections. At the beginning of the questionnaire, general questions were included regarding the place of residence, personal information, and information about the number of offspring.

The second part of the questionnaire, comprising four sections, focused on questions related to the course of pregnancy, childbirth, and any potential complications. It also contained questions to assess the parents' knowledge of the proper care of a newborn, gather information about where the parents acquired this knowledge, and obtain information related to breastfeeding. The following four sections of the questionnaire contained questions about the proper course of child development. These questions concerned the acquisition of motor skills appropriate for each month of a child's life. The final section of the questionnaire verified the parents' knowledge about the development of posture defects, the reasons for their formation, and the consequences of not treating them. It also included questions about any posture defects in their children and general questions related to physical activity.

Variables expressed at the ordinal or nominal level were analysed using tests based on Chi-square distribution. For 2×2 tables, a continuity correction was applied. In cases where the conditions for using the Chi-square test were not met, Fisher's exact test with extensions for tables larger than 2×2 was employed. The significance level was set at $p = 0.05$. The test accepted the null hypothesis H0: Variables are not dependent and the alternative hypothesis H1: There are significant dependencies between the variables. The calculations were performed using the statistical software R ver. 3.6.0, the program PSPP, and MS Office 2019.

Results

When asked about the age at which the majority of mothers gave birth to their children, as many as 70.5% indicated the age range of 21–30 years. Significantly fewer women gave birth between the ages of 31–40, at just under 23.7%. The smallest percentage of mothers giving birth was above 40 years old, with just over 1%.

Approximately 30.5% of the respondents declared that they lived in rural areas, while 69.5% indicated that they resided in urban areas.

Respondents were also asked about the educational background of both mothers and fathers. Among mothers, the largest percentage, as many as 66.3%, reported having higher education. The fewest women admitted to having achieved only primary education, with 2.1% of the respondents.

The results for fathers were somewhat different. Just under 48% reported having higher education, while 6.3% had only completed primary education.

Participants were also asked to provide information about the number of children they had. Half of them indicated having only one child, and more than four children were reported by only 0.5% of the survey participants (Figure 1).

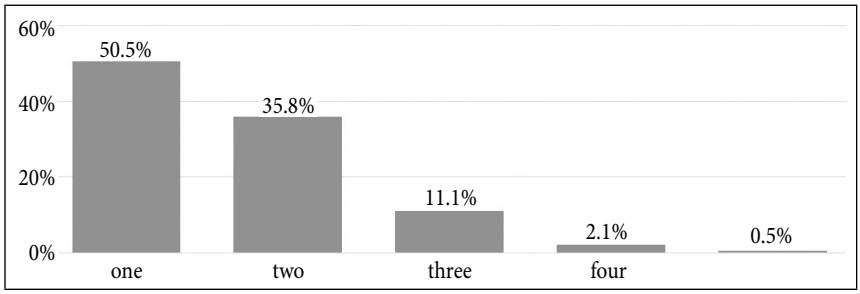

Figure 1. Number of children of respondents
Source: compilation based on authors' own research.

In the surveyed group of respondents, the level of knowledge regarding child development, breastfeeding, and childcare was assessed. To achieve this, the answers in the questionnaire were summed up and analysed. After the analysis, the results were presented in Table 1.

Table 1. Knowledge level of parents regarding child development, care, and breastfeeding

Level of knowledge about development	Frequency	Percentage
Lowest	57	30.0%
Average	85	44.7%
Highest	48	25.3%
Level of knowledge about childcare	Frequency	Percentage
Lowest	63	33.2%
Average	42	22.1%
Highest	85	44.7%
Level of knowledge about breastfeeding	Frequency	Percentage
Lowest	106	55.8%
Average	30	15.8%
Highest	54	28.4%

Source: compilation based on authors' own research.

We examined whether there is a relationship between the mother's age and the level of knowledge about child development and care (Table 2). Women under the age of 30 most commonly represented an average level of knowledge about child development (42.7%), similar to women above the age of 30 (51.1%). The distribution of knowledge levels was very close, and the differences observed were minor. In terms of knowledge about childcare, women under 30 most commonly had the highest level of knowledge (44.1%), just like women above 30 (46.8%). The results were not statistically significant ($p > 0.05$).

Table 2. Relationship between the level of knowledge about child development and care and the mother's age

			Mother's age		Test result
			up to 30 years old	above 30 years old	
Level of knowledge about child development	lowest	N	45	12	$\chi^2 = 1.060$ df = 2 p = 0.589
		%	31.5%	25.5%	
	average	N	61	24	
		%	42.7%	51.1%	
	highest	N	37	11	
		%	25.9%	23.4%	

			Mother's age		Test result
			up to 30 years old	above 30 years old	
Level of knowledge about childcare	lowest	N	45	18	$\chi^2 = 2.027$ df = 2 p = 0.363
		%	31.5%	38.3%	
	average	N	35	7	
		%	24.5%	14.9%	
	highest	N	63	22	
		%	44.1%	46.8%	
χ^2 – test statistics; df – degrees of freedom; N – sample size; p – statistical significance					

Source: compilation based on authors' own research.

The analysis also examined the level of knowledge about childcare and child development in relation to the mother's place of residence. Both women living in rural areas (39.7%) and those living in urban areas (47%) most commonly exhibited average knowledge about child development, and the differences between them were not statistically significant ($p > 0.05$) (Table 3).

Table 3. Relationship between knowledge level and the mother's place of residence

			Place of residence		Test result
			village	city	
Level of knowledge about child development	lowest	N	17	40	$\chi^2 = 1.596$ df = 2 p = 0.450
		%	29.3%	30.3%	
	average	N	23	62	
		%	39.7%	47.0%	
	highest	N	18	30	
		%	31.0%	22.7%	
Level of knowledge about childcare	lowest	N	25	38	$\chi^2 = 5.150$ df = 2 p = 0.076
		%	43.1%	28.8%	
	average	N	8	34	
		%	13.8%	25.8%	
	highest	N	25	60	
		%	43.1%	45.5%	
χ^2 – test statistics; df – degrees of freedom; N – sample size; p – statistical significance					

Source: compilation based on authors' own research.

Rural residents most frequently exhibited both the lowest and the highest levels of knowledge about childcare – 43.1% each, while urban dwellers most commonly demonstrated the highest level of knowledge – 45.5%. Although women living in cities were notably less likely to display the lowest level of knowledge, the differences were too small to be considered statistically significant ($p > 0.05$).

Another relationship examined was the dependency between the level of knowledge about child development and care and the mother's education. Due to the extremely small sample sizes for the categories of basic and vocational education, they were combined with the category secondary education. This was necessary to conduct a reliable analysis of the relationship.

Women with both secondary or lower education (46.9%) and higher education (43.7%) most frequently represented an average level of knowledge about child development, and the differences observed were statistically non-significant ($p > 0.05$).

However, it is worth noting that women with higher education significantly represented a higher level of knowledge about childcare compared to women with secondary or lower education. Women with secondary or lower education most frequently (57.8%) exhibited the lowest level of knowledge about childcare, while women with higher education most commonly demonstrated the highest level (52.4%).

Another relationship examined concerned the level of knowledge of women who have one child compared to those who have more than one. In this study, the low-frequency categories of three, four, and more than four children were combined into the category of two or more children. Mothers with one child (43.8%) and mothers with more than one child (45.7%) most frequently displayed average knowledge about child development. The differences observed here were statistically non-significant ($p > 0.05$). In terms of knowledge about childcare, women with one child exhibited the highest level of knowledge (45.8%). Women with more than one child also most commonly demonstrated the highest level (43.6%), and the differences observed between them could not be considered statistically significant ($p > 0.05$) (Table 4).

Table 4. The relationship between the number of children and mother's knowledge about child development and childcare

			Number of children		Test result
			one	more than one	
Level of knowledge about child development	lowest	N	32	25	$\chi^2 = 1.184$ df = 2 p = 0.553
		%	33.3%	26.6%	
	average	N	42	43	
		%	43.8%	45.7%	
	highest	N	22	26	
		%	22.9%	27.7%	
Level of knowledge about childcare	lowest	N	27	36	$\chi^2 = 2.895$ df = 2 p = 0.235
		%	28.1%	38.3%	
	average	N	25	17	
		%	26.0%	18.1%	
	highest	N	44	41	
		%	45.8%	43.6%	
χ^2 – test statistics; df – degrees of freedom; N – sample size; p – statistical significance					

Source: compilation based on authors' own research.

During the survey, respondents were asked whether they attended antenatal classes during their pregnancy. A significant portion declared that they did not participate in classes organised by antenatal schools – as many as 57.1%.

Therefore, this study aimed to investigate whether individuals who acquired knowledge from antenatal classes had a higher level of knowledge about childcare compared to those who did not attend such classes. The results proved to be statistically significant ($p < 0.05$). Women attending antenatal classes most frequently represented the highest level of knowledge about childcare – 52.4%, while women who did not attend antenatal classes most commonly represented the lowest level – 41.7%. The study demonstrated that women attending antenatal classes had a statistically significantly higher ($p < 0.05$) level of knowledge about childcare.

Parents were also asked about how their newborns were fed. The majority indicated that their child was breastfed – as many as 83.2%.

The analysis then focused on the relationship between the level of knowledge about breastfeeding among women who attended antenatal classes and those who did not. It was observed that women who attended

antenatal classes had a statistically significantly higher ($p < 0.05$) level of knowledge about breastfeeding (Table 5).

Table 5. The relationship between the level of knowledge about breastfeeding and attending antenatal classes

			Attending antenatal classes		Test result
			yes	no	
Level of knowledge about breastfeeding	lowest	N	37	69	$\chi^2 = 10.159$ df = 2 p = 0.006
		%	45.1%	63.9%	
	average	N	12	18	
		%	14.6%	16.7%	
	highest	N	33	21	
		%	40.2%	19.4%	
χ^2 – test statistics; df – degrees of freedom; N – sample size; p – statistical significance					

Source: compilation based on authors' own research.

Some of the participants reported using substances during pregnancy. The most common were coffee, with approximately 25% of the respondents, and cigarettes, with just over 3% (Table 6).

Table 6. Percentage of women using substances during pregnancy [%]

Substances used during pregnancy	Frequency	Percentage of observations
Cigarettes	7	3.58%
Alcohol	1	0.52%
Coffee	48	24.62%
None	139	71.28%

Source: compilation based on authors' own research.

Based on this data, the relationship between substance use and a normal course of pregnancy in women was examined. For the purposes of the study, the categories of alcohol, cigarettes, and coffee were combined, while for the course of pregnancy, the low-frequency categories were combined into the first trimester, the second trimester, and abnormal. Both among women who used substances (80.4%) and those who did not (83.5%), the course of pregnancy was most commonly normal, and the differences observed were so small that they should be considered statistically insignificant ($p > 0.05$) (Table 7).

Table 7. Relationship between the course of pregnancy and substance use during pregnancy

			Substance used during pregnancy		Test result
			used	not used	
Course of pregnancy	normal	N	41	116	$\chi^2 = 0.077$ df = 1 p = 0.781
		%	80.4%	83.5%	
	abnormal	N	10	23	
		%	19.6%	16.5%	
In total		N	51	139	
		%	100.0%	100.0%	
χ^2 – test statistics; df – degrees of freedom; N – sample size; p – statistical significance					

Source: compilation based on authors' own research.

During the study, parents were asked whether they took their child to a physiotherapist in the first year of life. Most of them did not. In the group of individuals who saw a physiotherapist, over 40% of the children required therapy. The results are presented in the table below (Table 8).

Table 8. Utilisation of therapy during physiotherapy appointments

Application of Therapy	Frequency	Percentage of observations
Bobath Therapy	17	21.79%
Vojta Therapy	7	8.97%
Sensory Integration	5	6.41%
Not Applied	47	60.26%
Other	7	8.98%

Source: compilation based on authors' own research.

Thus, it was examined whether a parent's desire to consult a physiotherapist is related to the place of residence. The result was statistically insignificant ($p > 0.05$), and the differences in the distribution of visits to a physiotherapist based on the place of residence were minimal. Both women living in the countryside (58.6%) and those living in the city (59.1%) most often did not visit a physiotherapist in the first year of their child's life ($p > 0.05$) (Table 9).

Table 9. The relationship between the place of residence and consulting a physiotherapist about child development

			Place of residence		Test result
			village	city	
Physiotherapist visit	yes	N	24	54	$\chi^2 = 0.000$ df = 1 p = 1.000
		%	41.4%	40.9%	
	no	N	34	78	
		%	58.6%	59.1%	
In total		N	58	132	
		%	100.0%	100.0%	
χ^2 – test statistics; df – degrees of freedom; N – sample size; p – statistical significance					

Source: compilation based on authors' own research.

During the study, parents were asked if they monitor their child's body posture. Over 77% of parents declared that they pay attention to their child's posture, 9% stated that they do not, and 14% of respondents mentioned that they do so rarely. Both rural residents (75.9%) and urban residents (78%) most commonly paid attention to their child's correct body posture – the difference here was slight and statistically insignificant ($p > 0.05$), as shown in Table 10.

Table 10. The relationship between the parents' place of residence and their concern with their child's proper posture

			Place of residence		Test result
			village	city	
Monitoring a correct body posture	yes	N	44	103	$\chi^2 = 0.402$ df = 2 p = 0.818
		%	75.9%	78.0%	
	no	N	6	10	
		%	10.3%	7.6%	
	seldom	N	8	19	
		%	13.8%	14.4%	
In total		N	58	132	
		%	100.0%	100.0%	
χ^2 – test statistics; df – degrees of freedom; N – sample size; p – statistical significance					

Source: compilation based on authors' own research.

Among the most common reasons for postural defects indicated by parents, the responses were adopting an incorrect posture – as many as

81.6%, and genetic factors – 60% of responses. The exact results are shown in Table 11.

Table 11. Characteristics of the study group with a consideration of knowledge about the causes of postural defects

Causes of postural defects	Frequency	Percentage of observations
Genetic factors	114	60.00%
Chronic diseases	64	33.68%
Vision impairments	36	18.95%
Mechanical injuries	91	47.89%
Incorrect body posture	155	81.58%
Developed in the mother's womb	59	31.05%
Other	1	0.53%

Source: compilation based on authors' own research.

Another relationship analysed was the influence of the mother's education on knowledge of the consequences of untreated postural defects in children. The results are presented in Table 12.

Table 12. The relationship between the mother's education and knowledge of the consequences of untreated postural defects

			Mother's education		Test result
			Lower or secondary	Higher	
Consequences of untreated postural deformities	Musculoskeletal pain	N	51	111	$\chi^2 = 21.168$ df = 6 p = 0.002
		%	79.7%	88.1%	
	Decreased physical fitness	N	17	57	
		%	26.6%	45.2%	
	Nervous system dysfunction	N	15	43	
		%	23.4%	34.1%	
	Digestive system disorders	N	11	44	
		%	17.2%	34.9%	
	Circulatory system disorders	N	17	47	
		%	26.6%	37.3%	
	Deformities	N	33	77	
		%	51.6%	61.1%	
χ^2 – test statistics; df – degrees of freedom; N – sample size; p – statistical significance					

Source: compilation based on authors' own research.

The result of the study turned out to be statistically significant ($p < 0.05$). Therefore, there are significant differences in the distribution of knowledge about the consequences of postural defects based on education.

Women with medium or lower than medium education most often indicated musculoskeletal system pain (79.7%) and deformities (51.6%), similar to women with higher education (88.1% and 61.1% respectively). However, it was observed that women with higher education significantly more often ($p < 0.05$) pointed to a decrease in the body's efficiency and digestive system disorders.

The influence of education was also examined regarding the knowledge of the causes of postural defects in children. For the purpose of the study, the extremely small category "other causes" was excluded because there was only one observation within this category. In this case, the result also turned out to be statistically significant.

Women with medium or lower than medium education most often indicated prolonged, incorrect body position (73.4%) and genetic factors (53.1%). Women with higher education also most often indicated incorrect body position (84.9%) and genetic factors (63.5%). It should be noted that women with higher education significantly more often ($p < 0.05$) pointed to chronic diseases and defects acquired in the mother's womb.

Discussion

Being a parent is one of the most important roles in a person's life. It transforms an individual into someone responsible not only for themselves but also for their newborn child. This entails acquiring skills related to childcare and knowledge about child development. This knowledge and skillset are crucial for providing the child with the right conditions for proper development and ensuring their safety.

Based on this research, it can be concluded that parents' knowledge of child development is not satisfactory. The correlation between the level of knowledge about child development and the mother's age was examined. The results of the statistical analysis turned out to be statistically

insignificant ($p > 0.05$). Both women under 30 years of age and women over 30 years of age showed an average level of knowledge. However, delving deeper into the percentage values, it can be observed that women over 30 had a slightly higher percentage of correct answers, by less than 10%, compared to younger women. A similar comparison was made in the study conducted by Filipowicz and Rekowski. Their analysis did not show any statistical significance either ($p > 0.05$). When analysing the percentage indicators, they noticed a trend of lower knowledge about child development among women under 30 years of age. The results regarding the correlation between a mother's age and knowledge about childcare show a consistent pattern. In both our own research and the article by Filipowicz and Rekowski, the results of this correlation are not statistically significant. In our study, knowledge about childcare is at a high level in both age groups. However, among women over 30 years of age, the percentage of correct answers is slightly higher, by less than 3%, compared to younger mothers [1]. The results of the study presented in the article by Deluga *et al.*, show that mothers in the age range of 21 to 25 had the highest level of knowledge about the newborn period and child development. However, the difference in the average score between this age group and the age range of 36 to 40 years was only 0.5 points [2].

The data in the study also compared the place of residence and education with the results of the knowledge assessment. Based on the results of the questionnaire, it is not possible to definitively determine whether mothers living in rural areas or those in urban areas have a greater knowledge of child development, as the results are not statistically significant ($p > 0.05$). In terms of the percentage distribution of correct answers, a slightly higher level of knowledge can be observed among women living in cities (47%) compared to those living in rural areas (39.7%). Filipowicz and Rekowski also observed a similar relationship in their study. Their results were statistically significant ($p \leq 0.05$). They found that the level of knowledge among mothers living in rural areas was significantly lower than that of mothers in medium-sized and larger cities, with only 28.6% providing correct answers . Similarly, the relationship between the place of residence and knowledge about childcare

follows a similar pattern. In the analysis of the results of our own study, there is no statistical significance, even though women living in cities clearly less frequently exhibited the lowest level of knowledge. However, in the study by Filipowicz and Rekowski, statistical significance was observed in this regard, and the percentage of correct answers among mothers living in rural areas was only 23.8%, while it exceeded 50% for women living in cities [1].

The analysis conducted by us did not show significance in the relationship between the mother's education and her level of knowledge about child development. However, analysing the results, it can be inferred that mothers with higher education more frequently provided correct answers compared to mothers with vocational, elementary, and secondary education. Similar conclusions can be seen in the article by Deluga *et al.*, which indicates that mothers with higher education, including a master's degree, have more extensive knowledge than other mothers. However, no such relationship was presented by Filipowicz and Rekowski in their article, stating that knowledge of child development is not related to the mother's education [1,2].

Another factor examined was the relationship between attendance at antenatal classes and maternal knowledge regarding breastfeeding. Just under 43% of the respondents stated that they attended classes organised at antenatal schools. According to this survey, women attending antenatal classes represented a significantly higher level of knowledge about breastfeeding ($p < 0.05$). Olejniczak and Krakowiak [15] point out that too few women decide to attend antenatal classes; according to their research, only 32.71% of women. On the other hand, Filipowicz and Rekowski's work presents results indicating that antenatal classes increase parents' knowledge level [1,15]. They also point out the relationship between attending antenatal classes and knowledge about childcare. It was shown that among those who attended, over 62% of mothers had a higher level of knowledge, while among those who did not attend, the level of knowledge about childcare was low, at 35.7% [1]. The results of the statistical analysis in our study also showed a significant relationship between the level of knowledge about childcare and participation

in antenatal classes. Women who attended antenatal classes most often represented the highest level of knowledge about childcare (52.4%), while women who did not attend antenatal classes most frequently had the lowest level of knowledge (41.7%).

The last issue addressed in the paper was parents' knowledge about postural problems in children. The results showed that regardless of the mother's place of residence, parents are concerned about their children's posture. The percentage of people declaring an interest in postural problems in children, living both in rural and urban areas, was above 75%. Over 80% of the respondents living in rural areas indicated that they know the definitions of postural problems and are aware of what they entail and their consequences. Our research showed statistical significance in the relationship between education and knowledge about the causes of postural problems. Women with higher education pointed out the adoption of incorrect postures in 84.9% of cases, as well as genetic factors in 63.5%. In the study presented in the article by Motow-Czyż and Motow, the most commonly mentioned cause of postural problems by parents is maintaining incorrect positions, as many as 88.2% [8].

Conclusions

The level of mothers' knowledge about childcare largely depends on their level of education. Women with only basic or primary education tend to have a low level of knowledge about childcare. Conversely, women with higher education demonstrate a higher level of knowledge about caring for their children.

Additionally, those who participate in antenatal classes have a greater knowledge base. This highlights the benefits of attending antenatal classes.

Furthermore, women with higher education demonstrate a better understanding of the causes of postural problems. They are more likely to identify the most significant causes of postural issues. In contrast, mothers with lower levels of education have less awareness of the factors influencing postural problems in children.

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Noteworthy is the thoughtful implementation into practice of the latest theoretical assumptions regarding the stages of the nursing process or guidelines relating to the making of nursing diagnoses, which makes the work lucid in its structure. Throughout the study, the ADPIE theoretical construct according to the North American Nursing Association (ANA) was adopted to specify the stages of the nursing process, which covered the following: 1) Assessment – gathering data on the biopsychosocial and mental state of the patient, in the form of a case report (case study method) and conducting a thorough nursing assessment based on scientific evidence, using not only observation, interviews and measurements, but also a number of standardised tools, such as scales; 2) Diagnosis – making a nursing diagnosis; 3) Planning – identifying appropriate nursing interventions to be implemented on the basis of scientific evidence (EB, EBP, EBN) and achieving care goals; 4) Implementation – enforcement of the nursing intervention plan; 5) Evaluation – assessing the outcomes of care and nursing interventions implemented […].

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The material presented in this monograph is characterised by the diversity of the methodology used, which shows the wide range of research and analysis conducted by the authors of the studies. Descriptions of the patients' state of health are presented using a wide range of tools to assess their general condition in its physical, mental and functional aspects. The following stages of the study present an original approach to the nursing process with detailed characteristics of health problems, definition of the goals of care, and, more importantly, empirical justification for the interventions undertaken and evaluation of the effectiveness of the activities. The possibilities of using the International Classification for Nursing Practice according to ICNP®, despite the still perceived deficiencies in the specialist vocabulary of the directories, are presented in a highly interesting manner. The solutions used are presented on the basis of current and comprehensive literature with a balanced use of English-language works. The studies presented in this monograph seem to be of interest to a wide range of readers, including individuals from outside the medical community […].

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