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## A Child with Glioblastoma Multiforme — Case Report

### Dziecko z glejakiem wielopostaciowym — opis przypadku

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#### Abstract

**Introduction.** Glioblastoma multiforme (GBM) is the most common central nervous system (CNS) malignancy. It is characterized by an aggressive course with the presence of rapidly growing cells, infiltrating the adjacent brain tissues.

**Case Report.** The case report concerns a 16-year-old child with glioblastoma multiforme. The paper presents selected care problems observed in the child.

**Discussion.** In caring for a child diagnosed with high-grade glioma, the most important care problems are severe, recurrent headaches, nausea and vomiting due to chemotherapy, chronic stress and anxiety, as well as a significant decrease in mood, resulting in e.g. social isolation. A nurse caring for a child with glioblastoma should not only focus on activities directly related to medical care, but also provide psychological support, which certainly improves the quality of life of the child and his family.

**Conclusions.** A patient with high-grade glioma has many different types of care problems. Some are problems related to the physical sphere, others concern the psychological and social sphere. (JNPN 2020;9(4):152–159)

**Key Words:** care, child, glioblastoma multiforme

#### Streszczenie

**Wstęp.** Glejak wielopostaciowy jest najczęściej występującym nowotworem ośrodkowego układu nerwowego, który cechuje się agresywnym przebiegiem z obecnością szybko rosnących komórek, naciekających na sąsiednie tkanki mózgu.

**Opis przypadku.** Opis przypadku odnosi się do szesnastoletniego chłopca z potwierdzonym histopatologicznie glejakiem wielopostaciowym. Praca przedstawia wybrane problemy pielęgnacyjne zaobserwowane u dziecka.

**Dyskusja.** W opiece nad dzieckiem z rozpoznaniem glejakiem o wysokim stopniu złośliwości najważniejsze problemy pielęgnacyjne to silne, nawracające bóle głowy, nudności i wymioty wynikające z chemioterapii, przewlekły stres i niepokój, a także znaczne obniżenie nastroju skutkujące m.in. izolacją społeczną. Pielęgniarka opiekująca się dzieckiem z glejakiem wielopostaciowym powinna nie tylko skupiać się na czynnościach bezpośrednio związanych z opieką medyczną, ale udzielać także wsparcia psychologicznego, które z pewnością podnosi jakość życia dziecka oraz jego rodziny.

**Wnioski.** U pacjenta z glejakiem o wysokim stopniu złośliwości występują liczne problemy pielęgnacyjne o różnorodnym charakterze. Część to problemy dotyczące sfery fizycznej, inne dotyczą sfer psychicznej i społecznej. (PNN 2020;9(4): 152–159)

**Słowa kluczowe:** opieka, dziecko, glejak wielopostaciowy

#### Introduction

Tumours of the central nervous system are the second most common group of malignancies in children [1]. World Health Organization (WHO) has divided gliomas

into four grades (I–IV). Low-grade gliomas are slow-growing and can be successfully removed by surgery or otherwise. 80% of people with low-grade glioma survive 5 years [2,3]. GBM is the most malignant primary tumour in this group (grade IV). Despite the advances

in chemotherapy, radiation therapy and neurosurgery, the average survival of a patient with GBM is still very low — only about 11–12 months. The prognosis is poor, not only because of the very rapid growth, but also due to the infiltrating nature. Treatment is mainly palliative. The aetiology is not well understood [4,5]. Some primary tumours are associated with hereditary diseases, such as neurofibromatosis type 1, type 2, tuberous sclerosis. Research into the pathogenesis of primary brain tumours has highlighted the importance of genetic factors. Certain genes have been found to contribute to neoplastic transformation. Environmental factors play a significant role in oncogenesis. The influence of ionizing radiation on the proliferation of brain tumours has been confirmed. The impact of other factors, such as pesticides, nitrosamines, mechanical injuries of the brain, tobacco smoke or exposure to oil derivatives is also very likely [6,7].

The clinical picture is varied and the management should aim at quick and correct diagnosis. This can be delayed by misinterpretation of the symptoms and misdiagnosis which is common in childhood. This has serious consequences — a delay of treatment significantly worsens the prognosis and the quality of patient's life [8].

Clinical symptoms are divided into general and focal. The general symptoms result from an increase in intracranial pressure (ICP). Newborns and infants manifest dehiscence of sutures and bulging of the fontanelles, which are not yet fused. An increase of the pressure is manifested by the greater capacity of the skull called hydrocephalus — the circumference of the head noticeably increases. The early symptoms may include spasms, vomiting, apathy, the lack of appetite, impaired psychomotor development, or even its regression. Behavioural changes are visible in older children. They may be reluctant to play with others or exercise; sometimes there are phobias and learning difficulties which did not occur before, also mild periodic headaches. The characteristic symptoms of a growing tumour appear later and include very severe headache in the morning, with time less responsive to painkillers, as well as vomiting, which may be preceded by nausea (resulting from the irritation of vagus nerve); also the symptoms caused by compression and paresis of the cranial nerves (e.g. visual and hearing impairment). Damage to the abducent nerve and papilloedema are typical. Disturbances in consciousness may occur, as well as convulsions and epileptic seizures, disorders of swallowing, articulation, micturition and defecation. Hormonal disorders and the associated behavioural changes (depression) are often.

In a very advanced stage of the disease, patients may suffer stroke due to a sudden increase in ICP and displacement of the structures inside the skull. In older children, the general symptoms are usually mild or

absent. The disease may be misdiagnosed as, for example, pseudo-stroke syndrome [9–11].

Focal symptoms vary and depend on the location of the tumour [12], however, in children the lesion is usually located in the brainstem, with the presence of the so-called brainstem stroke syndrome. The symptoms result from damage to the cranial nerves in the area of tumour. When the neoplasm is located in the posterior cavity of the skull, the symptoms of cerebellar syndrome mainly appear. These include coordination and balance disorders, as well as changes in handwriting and intentional tremors. If the tumour is located, for instance, in the frontal lobe, personality changes, mental disorders, and epileptic seizures predominate. Aphasia is the main manifestation of the tumour located in the temporal lobe [13,14].

The diagnosis is based on the clinical picture, results of imaging examinations and cerebrospinal fluid tests. It is also important to examine the fundus of the eye because papilloedema usually indicates the presence of tumour. However, the symptom may accompany other diseases and does not appear in the course of CNS tumour [8,14,15].

The treatment of GBM is mainly surgical and pharmacological. If possible, surgery is performed to remove glioma, either completely or partially. In the case of increased ICP, the procedure can be combined with decompression and collection of the material for tests. Surgical treatment is supplemented with chemotherapy and radiotherapy. In children, malignant gliomas are more sensitive to chemotherapy, which significantly extends the survival time. There are many multi-drug chemotherapy programs offers postoperative treatment with ifosfamide, administered alternately with etoposide and adriamycin. However, an optimal effective treatment regimen has still not been developed [15,16].

The aim of the study is to present the main nursing problems and to discuss care for a child with glioblastoma multiforme.

## Case Report

A 17-year-old boy, from spontaneous labour at time. There is no burden in the prenatal and perinatal medical history. The child's psychomotor development has been normal so far, there are no comorbidities; the family history is negative. The patient does not take any medications, he does not have allergies. There were no episodes of the loss of consciousness, recurrent infections or serious health problems.

The boy reported with his parents to the family doctor due to pain of the left ear. An ENT specialist diagnosed inflammation and introduced appropriate treatment.

Two weeks later, there was an episode of consciousness disorders with speech impairment. A computed tomography of the head was performed on an emergency basis, showing a tumour (4.5 cm × 3.6 cm × 3.2 cm) located in the left temporal lobe. The histopathological diagnosis was glioblastoma multiforme. The presence of the tumour was confirmed in the magnetic resonance imaging (MRI) examination. Three days later, left craniotomy was carried out and the lesion was removed. After the procedure, the computed tomography (CT) scan of the head showed a fluid space measuring 3.1 cm × 2.6 cm × 3.2 cm. The follow-up examinations performed a month later revealed an irregular hyperintensive zone with the mass effect in the frontal part of the left temporal lobe; the MRI image indicated the presence of a neoplastic infiltrate. The patient was qualified for chemotherapy — the first cycle was administered a few days after the examinations — the treatment for high-grade gliomas was instituted: Carboplatin + Irinotecan. Local radiotherapy was also performed with 40 doses of Temodal at a dose of 75 mg/m<sup>2</sup>.

Six months after the diagnosis, the patient is receiving a fourth cycle of chemotherapy. The infiltration progressed and oedema appeared in the left temporal-parietal area with the displacement of the central structures to the right.

The patient's general condition is medium, he is slowed down, weakened, but in logical contact. Good auto- and allo-orientation. The blood pressure is normal (110/70 mmHg), the heart rate (128 bpm) is elevated, the pulse on the radial artery is well tense. Saturation 90%. Temperature 36.4°C, breathing is normal (15 bpm), no coughing, shortness of breath or production of sputum. The mouth is normal, the tongue is clean. The skin, hair and nails are clean. The boy is 174 cm tall, he weighs 74 kg. His Body Mass Index (BMI) is 24.73 which is the borderline between the normal value and overweight. The statistical value on percentile growth charts developed by WHO, relating BMI to age, is normal and amounts to 85. The boy scored 15 points on the Glasgow Coma Scale.

His mood is low, he perfunctorily answers questions and denies the meaning of medical actions, he is very reluctant to cooperate, but agrees to examinations and treatment. He does not want to interact with peers, though before the disease he enjoyed socializing. The patient does not mind frequent visits from his parents, but he is not enthusiastic about visits from other people. When accosted, the boy withdraws himself. The conversation with the patient suggests that he spends most of his time in bed sleeping. According to the nursing staff, this is not due to an increased need for sleep, but because of the lack of motivation to be active and a desire to kill time.

The patient complains of periodic severe headaches which he scores 5–6 on the Visual Analogue Scale (VAS) scale. Nausea and vomiting also occur. His appetite is significantly reduced; when he is hungry, he chooses low-value snacks. His thirst is also diminished. Constipation appeared as a result of improper diet, taking medications and decreased physical activity. The patient moves on his own, but spends most of the time in bed, he is unwilling to participate in organized activities or play with others. His vision and hearing are normal. The skin and genitourinary system are normal. Intravenous therapy is underway — a central venous catheter (Broviac) has been inserted. The patient scored 38 points in the Beck Depression Inventory.

The analysis of the child's condition allowed for making the following nursing diagnoses:

*Problem 1: Discomfort Caused by Periodic Headache, which Results from the Stage of the Neoplastic Disease*

Purpose of nursing care. To eliminate or reduce pain.

Nursing interventions:

1. Constant observation and assessment of the nature and intensity of pain (using the VAS scale).
2. Observation and documentation of vital signs.
3. Administration of painkillers ordered by the doctor and evaluation of their effects.
4. Providing conditions for rest and elimination of stimuli hindering rest and aggravating pain.
5. Ensuring a sense of security, peace and the presence of loved ones.
6. Positioning the patient in the pain-relieving position.

Assessment. Pain significantly reduces the patient's well-being, and therefore the assessment of its nature and intensity is important. Thanks to proper evaluation, the nurse can implement appropriate measures to minimize discomfort caused by pain. It is always necessary to ensure peace and conditions enabling relaxation which significantly increases the pain threshold, and reduces the need for painkillers. The administration of analgesics diminishes discomfort [17].

*Problem 2: Discomfort due to Nausea and Vomiting Caused by the Treatment*

Purpose of nursing care. To improve the patient's well-being by eliminating or reducing nausea and vomiting.

Nursing interventions:

1. Administration of antiemetic drugs ordered by the doctor.
2. Proper positioning of the patient in bed (half-high position, head turned to the side).

3. An easily digestible diet, rational supply of food (smaller amounts at shorter intervals).
4. Supply of fluids and keeping the water balance.
5. Monitoring the amount and content of vomit, its time and frequency.
6. Providing the patient with equipment (kidney dish, wood-wool), clean surroundings and airing the room.
7. Ensuring proper oral hygiene (rinsing and cleaning each time).
8. Ensuring safety — preventing choking.

Assessment. The correct position in bed prevents choking. Increasing vomiting may cause electrolyte and acid-base disturbances, hence the need for proper fluid intake and keeping water balance. In order to improve the well-being, it is necessary to keep the surroundings clean and to administer antiemetic drugs ordered by the doctor. Ensuring oral hygiene and cleanliness of the surroundings reduce the stimuli that stimulate vomiting (smell, taste, image) [17].

*Problem 3: The Lack of Appetite Caused by the Treatment and Poor Mental State, a Danger of Malnutrition*

Purpose of nursing care. To prevent malnutrition and cachexia, to improve appetite.

Nursing interventions:

1. The assessment of the nutritional status of the patient with the help of anthropometric measurements, results of biochemical tests ordered by the doctor, medical history and physical examination.
2. Paying attention to the quality and quantity of meals consumed by the child.
3. Enabling contact with a dietician.
4. An easily digestible diet.
5. Supply of more frequent but smaller meals, prepared with ingredients to the liking of the patient.
6. Ensuring an atmosphere and conditions appropriate for eating meals.
7. If necessary, supply of preparations improving appetite — ordered by the doctor.

Assessment. If the lack of appetite is prolonged, there is a risk of malnutrition and weakening of the body. Without proper nutrition, recovery may be significantly delayed or even impossible. It is crucial to include a dietician as a member of the therapeutic team in order to use his/her knowledge and the ability to plan diet so as to provide the correct quantity of nutrients and calories. The conditions and atmosphere during meals are also important. If necessary, the nurse may administer preparations to improve appetite ordered by the doctor.

*Problem 4: Discomfort Caused by Constipation as a Result of Oncological Treatment*

Purpose of nursing care. To restore the proper rhythm of bowel movements, to improve mental comfort.

Nursing interventions:

1. An easily digestible diet with the increased content of dietary fibre (20–30 g/day).
2. Supplying the right amount of fluids (2–3 l/day).
3. Enabling bowel emptying in the way most comfortable for the patient (enema/transport to the toilet, ensuring intimacy).
4. Applying rectal procedures (enema, rectal enema, rectal drip enema).
5. Administration of drugs to facilitate defecation ordered by the doctor.
6. Application of non-pharmacological treatment to eliminate constipation (physiotherapy, physical activity adapted to the child's condition).
7. The assessment of bowel movements with an entry in medical records.

Assessment. A diet with an increased amount of dietary fibre, adequate fluid intake and properly selected physical activity to improve intestinal motility and soften the stool. The supply of laxatives ordered by the doctor will allow to defecate quickly by accelerating the peristalsis. Peristaltic movements are also accelerated by rectal procedures — they soften faecal masses and irritate the sensory endings of the nerves within the large intestine.

*Problem 5: Anxiety and Stress Caused by Frequent Examinations, Procedures and Treatment*

Purpose of nursing care. To eliminate or reduce anxiety and other negative feelings, ensure a sense of security.

Nursing interventions:

1. Mental support, conversation, information about planned activities, the course of treatment and diagnostics.
2. Accompanying the child during examinations, enabling family closeness.
3. Administration of premedication before invasive examinations, giving painkillers afterwards, if necessary.
4. Patient answering the child's questions, showing understanding.
5. Constant observation of the patient, the assessment of the reaction to the disease and hospitalization.
6. Providing the patient with peace.
7. Offering the support of a psychologist/priest.

Assessment. Assessing the patient's reaction is essential for planning therapeutic activities. It allows to learn about deficits in coping with the new situation. Rapport should be established in order to properly evaluate the



patient's reaction and build confidence. Therefore, an empathetic attitude is necessary. Spending time with the patient, the presence of family, ensuring honesty and patience in conversations increase a sense of security, and reduce the level of anxiety.

*Problem 6: Social Isolation Resulting from the Depressed Mood, Stress and Irritability Caused by the Diagnosis of Cancer*

Purpose of nursing care. To facilitate adaptation to new conditions, prevent isolation.

Nursing interventions:

1. Building trust and effective communication with the child and its family.
2. Spending spare time actively in a way which is adjusted to the condition of the patient.
3. Offering alternative ways of contacting friends and the outside (e.g. the Internet, phone calls).
4. Offering contact with other people in a similar situation/support groups.
5. Encouraging contact with a psychologist and participation in occupational therapy.
6. Distracting from negative thoughts.
7. Empathy and patience in contact with the patient.

Assessment. A person taken from his/her social environment, who had to abandon social roles and who became isolated from the outside will suffer worse health and less mental resistance to difficulties. Therefore, in order to improve the recovery and reduce the risk of depression, it is essential to maintain social interactions and bonds with other people. The support of a psychologist, support groups, family and friends can be helpful.

*Problem 7: Negative Thoughts and Emotions and the Risk of Depression Caused by the Disease*

Purpose of nursing care. To reduce negative thoughts, improve the patient's well-being, prevent depression.

Nursing interventions:

1. Mental support, active listening and encouraging the expression of emotions and feelings.
2. Understanding the causes of poor mental condition and reducing them as much as possible.
3. Ensuring the presence of loved ones.
4. Motivating to fight the disease, increasing self-esteem.
5. Actions to reduce the child's anxiety.
6. Showing empathy, understanding and care.
7. Answering questions honestly and patiently.
8. Administration of pharmacotherapy ordered by the doctor.

9. Encouraging a conversation with a psychologist.
10. Offering support of a physiotherapist, activating the patient.
11. Family education on support and mobilization of the child.
12. Providing an atmosphere of safety and peace.

Assessment. Non-pharmacological methods play an important role in the fight against depression and in its prevention. Rapport with the patient and active listening encourage the child to express emotions, motivate and raise self-esteem. Honesty and patience give a sense of security, and this in turn facilitates the process of building trust. The presence of family educated on how to help and deal with the situation is very important and even necessary, in order to help the patient deal with difficult emotions. Physical activity improves mood and reduces the symptoms of depression.

*Problem 8: The Risk of Infection Associated with the Presence of Central Venous Line*

Purpose of nursing care. To prevent a catheter-related infection.

Nursing interventions:

1. Proper care of the injection site.
2. Compliance with the rules of asepsis and antisepsis when using the line.
3. Rinsing the catheter with saline solution after drug administration, protection against air embolism.
4. Regular inspection of the injection site and catheter outlet for complications.
5. Regular change of dressings, or when necessary.
6. Education of the patient and family on how to deal with the catheter, informing about the need to report undesirable symptoms.
7. Proper care of the skin around the injection site (moisturizing and lubricating).

Assessment. Observation enables early detection of the signs of infection, and quick implementation of appropriate actions, if necessary. Proper care of the injection site and following the rules of asepsis and antisepsis prevent the development of infections.

*Problem 9: Increased Susceptibility to Infections, Resulting from the Impaired Functioning of the Immune System Due to the Disease and Treatment*

Purpose of nursing care. To protect against infections, and if necessary, start treatment immediately.

Nursing interventions:

1. Adherence to the rules of asepsis and antisepsis.
2. Limiting visits, only healthy people should visit the patient.

3. Education of visitors on infection prevention.
4. Monitoring the general condition of the patient.
5. Education of parents and children on proper personal hygiene (cleaning the whole body everyday, paying attention to the condition of the nails, frequent hand washing, daily change of bed linen and underwear, etc.).
6. Administration of drugs in accordance with a medical order.
7. If necessary — placing the child in an isolation room, collecting materials for tests.

Assessment. Most of the drugs used in chemotherapy impair the functioning of the immune system. By following the rules of asepsis and antisepsis, personal hygiene, cleanliness of the surroundings and limiting contact with sick people, the chances of being infected and thus falling ill are reduced.

*Problem 10: Difficulty in Parents' Pulling Oneself Together in a New Situation, which is Manifested in Anxiety, Irritability and Mood Swings*

Purpose of nursing care. To facilitate adaptation to new conditions, reduce negative emotions.

Nursing interventions:

1. Showing understanding and patience.
2. Fighting the feeling of helplessness through education on the disease and changes in childcare.
3. Patient answering questions, clarifying doubts, building rapport with the family and an atmosphere of trust through honest conversations.
4. Encouraging the support of a psychologist.
5. Informing about activities to be performed in the child, explaining their nature and thus reducing anxiety.

Assessment. In order for all therapeutic actions to be successful, cooperation of family members is necessary. Providing parents with knowledge about the child's condition and care, as well as patience, will not only significantly reduce anxiety and nervousness, but will also have a positive impact on the child's well-being. In such situations, the support of a psychologist, who is qualified to provide this type of assistance, is particularly effective.

## Discussion

Glioblastoma multiforme is the most common CNS malignancy. It is characterized by an aggressive course with the presence of rapidly growing cells, infiltrating the adjacent brain tissues. The literature review indicates the palliative nature of treatment, which over the last

decade significantly extended the survival time, even up to 24 months [5,18].

Gliomas have two peak incidence — in childhood and between the age of 55 and 65. According to statistics, women suffer more often than men [19]. In this case, the disease was diagnosed in a 16-year-old boy. The tumour is usually located in the supratentorial fronto-temporal area [20], and this was the case here. The imaging examination showed a tumour located in the left temporal lobe. The family history was negative; the boy was not exposed to risk factors.

The clinical picture of CNS malignancy includes the triad of symptoms: headache, nausea/vomiting and papilloedema. This is due to the chronically increased intracranial pressure. Other symptoms associated with high blood pressure include somnolence, disturbance of consciousness, balance problems and neck stiffness. The headache is typical: it starts and is the most severe in the morning. The pain aggravates as the tumour grows and over time becomes less responsive to painkillers. Often, but not always, it is the first manifestation of the increased intracranial pressure [21]. Rojek et al. [5] present the case of a 55-year-old woman whose first symptom was repeated seizures; it was an episode of consciousness disturbance with speech disorders. An ophthalmological examination performed on admission to the neurosurgical ward showed no signs of papilloedema. Nausea and vomiting appeared only during hospitalization.

The focal symptoms result from the pressure of the pathological mass on structures of the brain. In this case, the lesion was located in the left temporal lobe with aphasia, characteristic for this type of tumour.

Other, equally characteristic symptoms of this location are: superior contralateral quadrant amblyopia, memory disorders, epilepsy, as well as visual and auditory hallucinations; these symptoms were confirmed in this case. Additionally, behavioural disturbances were reported. According to the parents, the boy has become more apathetic and isolated, but it was only after diagnosis and starting treatment that his mood drastically decreased. The symptoms of depression and attacks of irritability appeared. The boy's well-being was significantly worsened by headaches, which with time became more and more intense.

According to Zarzycka et al. [22], patients with oncological problems are a special group. Therefore, the nurse should be highly empathic because it helps to understand emotions of other people and thus provide effective help. Satisfying emotional needs is as important as meeting physical needs, and therefore the nurse should pay attention to the mental condition of the child and its family. It is necessary to combat anxiety and fear, ensure a sense of security and create an atmosphere of trust. According to Baczevska et al. [23], depression,

fear and pain almost always accompany neoplastic diseases; combating them is crucial, but very difficult. Research shows that these problems have a significant impact on the process of healing as they can slow down or even prevent recovery. Parents are very important members of the care team, and therefore they should also be looked after. The involvement of a psychologist in meeting emotional needs is of great importance.

Recurrent headaches were one of the most important problems in this case. Pain in the course of cancer is quite specific. In order to effectively fight it, it is necessary to determine its nature, intensity, location, etc. The assessment of pain is based not only on medical history, but also on careful observation and active listening [23]. Pain in the course of cancer is persistent or recurrent, it poorly responds to treatment. In this case, the pain is also becoming more and more severe. This type of pain causes not only mental discomfort, but also physical exhaustion. Many different tools can be used to evaluate pain, including the VAS scale.

Mitchell et al. [24] indicate that in 16.5% of patients depression coexists with neoplastic diseases, although the results of studies conducted by other researchers are varied. Fear, anger, depression and chronic stress to which a sick child is exposed, not only deteriorate well-being and pose a threat of depression, but also lower the pain threshold and intensify side effects of treatment. Regardless of the cause, it is necessary to fight for the best possible mental condition of the patient. For this purpose, the child should be provided with peace and closeness of loved ones. Active listening and patience are essential. Honesty is also required as it is the basis for effective communication. In order to reduce fear of, for example, examinations, it is advisable to provide information about their purpose, course and possible premedication. Expression of emotions should always be encouraged, and this was the aim of caring for the boy.

The treatment begins with a correct diagnosis. In this case, it was made correctly and relatively quickly.

Treatment includes surgery (if possible) in order to fully or partially resect the tumour. Complete resection carries a serious risk of neurological complications, with the consequent reduction in the quality of life. Due to the palliative nature of the treatment, today's neurosurgery tends to favour subtotal resection. In this case, a decision was made to incompletely remove the pathological lesion by left-sided temporal craniotomy. The treatment was supplemented with radiotherapy and chemotherapy.

There are many treatment programs. Rojek et al. [5] give the example of a patient who, due to the extent of the tumour, was not qualified for surgery, but underwent radical radiotherapy and the treatment with Temozolomide. In this case, local radiotherapy and treatment with Temozolomide were applied. Until now,

four cycles of chemotherapy have been given — Irinotecan combined with Carboplatin.

According to Rojek et al. [5], despite the development of medicine, technological advances and numerous new treatments, GBM is still an incurable disease, however, there are factors that have a positive impact on prognosis. In this case, these include young age, quick diagnosis and additional treatment with Temozolomide.

Nursing actions taken on the ward by the staff increased the patient's physical comfort. Pain relief methods were effective, as were measures to reduce nausea, and this significantly improved the child's well-being. Eliminating negative thoughts, fighting anxiety, the risk of malnutrition and social isolation are problems that require a longer time and the involvement of many specialists. Parents feel clearly reassured by frequent conversations and addressing all their questions.

## **Conclusions**

A patient with high-grade glioma has many different types of care problems. Some are problems related to the physical sphere, others concern the psychological and social sphere. The most important of these are: severe recurrent headaches resulting from the advancement of the cancer, and negative thoughts and emotions caused by the disease and threatening to develop full-blown depression.

The disease significantly reduces the child's quality of life, not only due to the patient's general condition and numerous bothersome symptoms, such as recurrent, severe headaches or nausea.

## **Implication for Nursing Practice**

A case report analysis presented in this paper shows how important the role of a nurse in the therapeutic process is, and also that her holistic approach not only improves the child's quality of life, but also its physical condition. This finding also indicates that nurses should help parents to talk about the strains they experience. To our knowledge, this is the first report in Poland presenting the knowledge of nursing care for a child with glioblastoma multiforme, which may contribute to broadening the knowledge of this disease among staff involved in this field.

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of the procedures involved. The study was carried out in accordance with guidelines of the Declaration of Helsinki and Good Clinical Practice.

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