
Nursing Care for Patients with Brain Tumors: A Comprehensive Approach

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Abstract:

Nursing care for patients with brain tumors encompasses a multifaceted approach, addressing not only the physical needs of the patient but also the emotional, psychological, and social aspects of care. It begins with thorough assessments to identify the specific symptoms related to the tumor's location and type, such as headaches, seizures, cognitive changes, and motor skill impairments. Nurses play a crucial role in administering medications, monitoring neurological status, and managing symptoms to enhance the patient's quality of life. Education is another key component, as nurses provide patients and families with essential information about the diagnosis, treatment options, potential side effects, and coping strategies. This supportive education empowers patients to make informed decisions and engage actively in their care. In addition to clinical assessment and education, nurses must foster a supportive environment that addresses the emotional and psychological impacts of a brain tumor diagnosis. It is vital for nursing staff to demonstrate empathy and understanding, as patients often experience anxiety, depression, and fear regarding their prognosis and treatment. Implementing therapeutic communication and active listening can help build a trusting relationship, allowing patients to express their concerns and preferences openly. Moreover, nurses should facilitate access to multidisciplinary teams, including social workers, psychologists, and palliative care specialists, ensuring a holistic approach to treatment. By prioritizing both the physical and emotional needs of patients with brain tumors, nurses can significantly contribute to improving patient outcomes and quality of life.

Keywords: Brain tumors, Nursing care, Patient assessment, Symptom management, Medication administration, Education and empowerment, Emotional support, Therapeutic communication, Multidisciplinary team, Quality of life.

Introduction:

The impact of brain tumors on patients and their families is profound, encompassing a spectrum of physical, psychological, and social challenges. Brain tumors, both benign and malignant, can lead to a variety of neurological deficits and significantly affect quality of life. As primary caregivers, nurses play a pivotal role in the management of patients with brain tumors, providing not only clinical care

but also emotional support and guidance through the complex healthcare landscape [1].

The increasing incidence of brain tumors underscores the need for a comprehensive nursing approach tailored to the unique needs of this patient population. According to the Central Brain Tumor Registry of the United States (CBTRUS), brain tumors account for approximately 20% of all primary brain and central nervous system tumors in

adults, with significant increases in diagnostic rates over the past two decades. This trend is attributed to advancements in imaging technology, increased awareness of neurological symptoms, and the development of better screening methods. With more individuals diagnosed, the necessity for specialized nursing care becomes critical [2].

This comprehensive approach to nursing care encompasses several facets: assessment and diagnosis, treatment management, symptom control, psychological support, patient education, and palliative care. Each of these components is crucial to address the diverse challenges faced by patients with brain tumors, from the initial diagnosis to survivorship or end-of-life care [3].

The initial stage of nursing care for patients with brain tumors involves thorough assessment and accurate diagnosis. Nurses must be well-versed in recognizing the early signs and symptoms associated with brain tumors, which can include headaches, seizures, cognitive changes, and focal neurological deficits. Conducting a detailed health history and performing neurological assessments are fundamental responsibilities of nursing professionals in this setting. By identifying critical symptoms early, nurses can facilitate timely interventions and expedite referrals to appropriate healthcare specialists [4].

Moreover, the role of nurses extends to collaborating with interdisciplinary teams, which often include oncologists, radiologists, psychologists, and rehabilitation specialists. This collaborative approach ensures holistic assessment and management, promoting comprehensive care tailoring to each patient's individualized needs [5].

In the treatment phase, nurses play a central role in administering therapy and managing potential side effects. Patients with brain tumors may undergo various treatment modalities including surgery, radiation therapy, and chemotherapy. Each of these treatments presents distinct challenges, requiring specialized nursing interventions [5].

For instance, post-operative care following craniotomy requires vigilant observation for signs of complications such as infection, hemorrhage, or neurological decline. Nurses are responsible for monitoring vital signs, managing pain, and providing wound care while educating patients and families about the recovery process. In cases

requiring oncology treatments such as chemotherapy or radiation, nurses must also ensure proper administration protocols are followed while monitoring for adverse reactions, such as fatigue, nausea, and cognitive impairment, commonly referred to as "chemobrain."

Effective symptom management is another cornerstone of nursing care for patients with brain tumors. Symptomatology can vary widely between individuals, and the nurse's assessment skills are crucial in tailoring interventions. Common symptoms include pain, cognitive deficits, mood changes, and fatigue [6].

Nursing interventions may involve pharmacological management, such as pain relief and anti-emetic medications, as well as non-pharmacological strategies such as relaxation techniques, patient positioning, and referral to physical or occupational therapy. Additionally, addressing psychosocial aspects, such as anxiety and depression, is essential for improving the overall well-being of patients. Nurses can implement strategies for psychological support, including therapeutic communication, facilitating support group access, and counseling services [7].

An often-overlooked aspect of nursing care for brain tumor patients is the emotional and psychological support provided throughout the disease trajectory. The diagnosis of a brain tumor can prompt feelings of fear, uncertainty, and loss of control, which can significantly affect patients and their families. Nurses are in a unique position to provide compassionate care, helping patients navigate the emotional landscape of their diagnosis and treatment [8].

Another critical element is patient education. Nurses must educate patients and their caregivers about the disease process, treatment options, and potential side effects. By empowering patients with knowledge, they can facilitate informed decision-making and enhance self-management skills. Moreover, educating caregivers on how to support their loved ones physically and emotionally is vital in creating a comprehensive support network around the patient [9].

As treatment progresses and the disease advances, the role of nursing care shifts toward palliative care, aimed at enhancing the quality of life for patients with brain tumors facing terminal diagnoses.

Palliative care focuses not only on physical symptom control but also on providing emotional and spiritual support to patients and their families. Nurses must assess each patient's individual needs, coordinate with interdisciplinary teams, and assure ongoing communication regarding goals of care [9].

In-depth conversations about advanced directives, end-of-life wishes, and grief counseling are often part of care in this stage. Continuing to offer support, compassion, and advocacy throughout this process significantly impacts the experience of both the patient and their family [9].

Nursing Assessment: Identifying Patient Needs and Symptoms:

The nursing assessment is a fundamental component of patient care, particularly for individuals diagnosed with brain tumors. These patients present a unique array of challenges due to the multifaceted nature of their condition, which can significantly impair cognitive function, physical abilities, and emotional well-being [10].

Before exploring the nursing assessment process, it is essential to understand brain tumors and their implications on health. Brain tumors can be classified as primary (originating in the brain) or secondary (metastasizing from other parts of the body). The impact of a brain tumor often varies according to its type, size, and location, as well as the age and overall health of the patient. Symptoms can range from headaches and seizures to cognitive changes and personality alterations. With such variance, a comprehensive nursing assessment is vital [10].

Comprehensive Nursing Assessment

A nursing assessment for a patient with a brain tumor typically comprises a systematic, organized approach that includes the following components:

1. Patient History

A thorough history helps contextualize the patient's current health status. Key components include:

- **History of Present Illness:** Gathering specific information about the onset of symptoms, duration, and any treatment received thus far. It's vital to understand how the symptoms affect the patient's daily life [11].

- **Medical History:** Evaluating the patient's past medical conditions, surgeries, or treatments, including any previous history of cancer.
- **Family History:** Identifying any genetic predisposition to tumors, particularly in cases of familial cancer syndromes.
- **Medications:** Documenting all medications taken, including over-the-counter drugs and supplements, as some may interact with treatment plans [11].

2. Physical Assessment

Physical assessments for patients with brain tumors should focus on identifying neurological deficits and overall health. Key areas to evaluate include:

- **Neurological Examination:** This assessment includes checking the patient's level of consciousness, orientation, memory, speech, and cognitive abilities. Motor functions and sensory responses should also be assessed through tasks such as grasping movements or identifying sensations [12].
- **Vital Signs:** Regular monitoring of vital signs is critical, as changes can indicate increased intracranial pressure or complications related to treatment.
- **Appetite and Weight Monitoring:** Assessing nutritional status can highlight other underlying problems such as nausea or altered taste, which can result from the tumor itself or treatment side effects [12].

3. Assessment of Symptoms

Patients with brain tumors may experience a range of symptoms. Nurses should be attentive to the following:

- **Neurological Symptoms:** These may include headaches, seizures, dizziness, and vision or hearing problems. The characteristics of headaches (e.g., intensity, location, and frequency) are particularly crucial for assessing changes in the condition [13].
- **Cognitive Symptoms:** Assessing for changes in memory, decision-making abilities, and concentration is essential.

Patients may report confusion or difficulty in processing information, requiring careful attention to how these symptoms affect their quality of life.

- **Emotional and Psychosocial Assessment:** Patients often face psychological challenges, including anxiety and depression. Conducting screenings for mental health issues can help identify the need for psychological support or intervention.
- **Functional Assessment:** Evaluating the patient's ability to perform activities of daily living (ADLs) is crucial. This encompasses self-care tasks, mobility, and social interactions, which can be profoundly impacted by the tumor or its treatment [13].

4. Communication and Support Needs

Effective communication is vital in assessing the needs and preferences of patients with brain tumors. Given the potential for cognitive impairment and emotional distress, nurses must use clear, compassionate language and remain attuned to non-verbal cues. Patients may benefit from:

- **Education:** Providing information about the disease, treatment options, and potential side effects empowers patients and their families to make informed decisions.
- **Support:** Identifying available resources, including patient support groups or counseling services, is essential in addressing the psychosocial aspects of the illness [14].

Developing a Holistic Care Plan

Once the assessment is complete, nurse practitioners can collaborate with other healthcare professionals to develop a comprehensive, individualized care plan. This plan should address the identified needs, incorporating medical treatment, psychological support, nutritional guidance, and rehabilitation services. Continuous reassessment is necessary, as the needs of these patients may evolve throughout treatment [15].

Symptom Management and Pain Control Strategies:

Brain tumors present a complex medical challenge not only because of their diverse types and locations but also due to the intricate nature of the brain itself. Patients suffering from brain tumors often experience a multitude of symptoms, including headaches, seizures, cognitive impairments, and various neurological deficits. Accompanying these symptoms, pain management becomes a critical component of patient care, significantly impacting the quality of life [16].

Understanding the Symptoms

Brain tumors can arise as primary tumors originating in the brain or as metastatic tumors resulting from cancer spreading from other parts of the body. The symptoms experienced by patients can vary widely depending on the tumor's type, size, and location. Some common symptoms include:

- **Headaches:** Often one of the initial symptoms, headaches can become increasingly severe and persistent as the tumor grows, exerting pressure on surrounding tissues.
- **Seizures:** About one-quarter of brain tumor patients experience seizures, which can range from minor twitching to full-body convulsions.
- **Cognitive and Emotional Changes:** Patients may face challenges with memory, concentration, and other cognitive functions. Emotional disturbances, including depression and anxiety, are also prevalent.
- **Neurological Deficits:** Depending on the tumor's location, patients may present with motor deficits, speech difficulties, and sensory disruptions [17].

Recognizing and addressing these symptoms is vital in creating a comprehensive care plan that prioritizes the patient's overall well-being.

Pain Control Strategies

Effective pain management is crucial for brain tumor patients as unmanaged pain can significantly hinder recovery and diminish the quality of life.

Approaches to pain control can be both pharmacological and non-pharmacological [18].

1. Pharmacological Interventions

The pharmacological management of pain in brain tumor patients necessitates a tailored approach, often involving a combination of various medication classes:

- **Non-Opioid Analgesics:** Over-the-counter medications like acetaminophen and non-steroidal anti-inflammatory drugs (NSAIDs) such as ibuprofen can be effective for mild to moderate pain. They are often the first line of treatment.
- **Opioids:** For the management of moderate to severe pain, opioids like morphine and oxycodone are frequently utilized. These medications can provide significant relief; however, they require careful monitoring to manage side effects such as sedation, constipation, and potential dependency.
- **Adjuvant Medications:** Certain medications originally developed for other conditions can be beneficial in treating nerve pain. Antidepressants (like amitriptyline) and anticonvulsants (such as gabapentin) have shown efficacy in managing neuropathic pain.
- **Corticosteroids:** Prednisone and dexamethasone are commonly used to reduce edema and inflammation around the tumor, thereby alleviating pain. They can also help relieve other symptoms, such as headaches and nausea [19].

2. Non-Pharmacological Strategies

Complementing pharmacological treatments with non-drug interventions can provide holistic pain management and improve quality of life [20].

- **Physical Therapy:** Tailored physical therapy can help maintain mobility and function, addressing pain associated with muscle weakness and stiffness.
- **Occupational Therapy:** This therapy focuses on enabling patients to perform daily activities while managing pain effectively, enhancing their independence and quality of life.

- **Cognitive Behavioral Therapy (CBT):** Psychological interventions like CBT can assist patients in coping with chronic pain and emotional disturbances. Techniques learned can help manage pain perception and reduce anxiety related to the diagnosis and progression of the disease.
- **Mindfulness and Relaxation Techniques:** Practices such as yoga, meditation, and deep-breathing exercises can help in managing anxiety and pain perception. These techniques promote relaxation, which can, in turn, alleviate the sensation of pain.
- **Complementary Therapies:** Acupuncture and massage therapy have gained popularity as adjunctive therapies for patients suffering from chronic pain. Research has indicated that these methods can provide relief and improve overall well-being [21].

Symptom Management

Beyond pain control, effective symptom management for brain tumor patients should encompass a well-rounded strategy that addresses all facets of their experience.

- **Regular Monitoring and Adjustment of Treatment:** Continuous assessment and modification of the treatment plan are essential to ensure optimal outcomes. This may include reassessing medication dosages, switching medications, or incorporating new therapies based on the patient's evolving symptoms and needs.
- **Communication and Education:** Strong communication between healthcare providers, patients, and caregivers is vital. Education regarding the nature of brain tumors, anticipated symptoms, and available management options can empower patients in their care journey.
- **Support Systems:** Emotional and psychological support from family, friends, and support groups can play a significant role in a patient's coping mechanisms. Encouraging open discussions about fears, frustrations, and the impact of symptoms

can facilitate better emotional health and adherence to treatment protocols [22].

Patient Education: Empowering Through Knowledge:

In the landscape of healthcare, patient education has emerged as a pivotal element of effective treatment and recovery, particularly for individuals diagnosed with complex conditions such as brain tumors. Patient education goes beyond mere dissemination of information; it serves as a fundamental catalyst for empowerment, enabling patients to take control of their health, make informed decisions, and engage actively in their treatment processes. In the case of brain tumors, which often involve intricate medical considerations and significant emotional challenges, educating patients about their condition becomes a vital component of holistic care [23].

Understanding Brain Tumors

Before delving into the specifics of patient education, it is essential to grasp the nature of brain tumors themselves. A brain tumor is an abnormal growth of cells in the brain, which can be benign (non-cancerous) or malignant (cancerous). There are numerous types of brain tumors, each categorized based on their origin, such as gliomas, meningiomas, and metastatic tumors. The distinction between these types is critical, as it influences treatment options, prognosis, and the overall approach to care [24].

Brain tumors can lead to a myriad of neurological symptoms, including headaches, seizures, cognitive changes, and motor function difficulties. These symptoms can not only disrupt daily life but also induce significant psychological stress, not only for patients but for their families as well. Therefore, a sound understanding of brain tumors and their manifestations is integral to navigating the complexities of the disease [24].

The Role of Patient Education

Patient education regarding brain tumors entails providing thorough and accessible information about the disease, treatment modalities, potential side effects, and coping strategies. Knowledge equips patients with the tools to advocate for themselves, communicate effectively with healthcare providers, and understand the rationale behind treatment choices. Educational efforts can take various forms, including brochures,

informational websites, support groups, and one-on-one consultations with healthcare professionals [25].

1. **Informed Decision-Making:** One of the primary benefits of patient education is bolstering informed decision-making. With the myriad of treatment options available—ranging from surgery and radiation therapy to chemotherapy and emerging immunotherapies—patients often find themselves at a crossroads. Understanding the potential benefits and drawbacks of each treatment path allows patients to engage in shared decision-making with their medical team. For instance, knowing the difference between the characteristics of a benign tumor versus a malignant tumor can lead to a more accurate understanding of why certain interventions may be recommended [25].
2. **Understanding Treatment Modalities:** Treatment of brain tumors can be complex, often involving a multidisciplinary approach that includes neurosurgeons, oncologists, radiologists, and rehabilitation specialists. Each of these experts may communicate different aspects of the patient's care, and understanding the terminology and rationale behind various interventions can mitigate feelings of confusion and helplessness. Patients well-versed in their treatment plans are more likely to adhere to prescribed therapies and identify any side effects that may arise [26].
3. **Emotional and Psychological Support:** A diagnosis of a brain tumor can be overwhelming, instigating anxiety, fear, and uncertainty about the future. Patient education plays a critical role in addressing not just the physical aspects of the disease but also the emotional dimensions. By providing information about support networks, coping mechanisms, and psychological counseling, patients can gain resilience and reassurance during a tumultuous time. Recognizing that they are not alone in their fight can significantly enhance the overall well-being of patients [26].

- 4. Empowerment through Knowledge:** Engineered to promote patient autonomy, education fosters a sense of empowerment. When patients understand their diagnosis and treatment options, they feel more in control of their health journey. Empowered patients are more likely to communicate openly with their healthcare teams, ask questions, and express their concerns, leading to better healthcare outcomes. Moreover, when patients are educated about lifestyle factors that can contribute to health and recovery—such as nutrition and exercise—they may become proactive agents in their care, which can further their healing process [27].

Challenges and Barriers to Education

Despite the clear benefits of patient education, multiple challenges can hinder effective communication and understanding. Medical jargon can intimidate patients; therefore, healthcare professionals must strive to communicate in clear, layman's terms. Additionally, the emotional burden of a brain tumor diagnosis may impede a patient's ability to absorb information—stress, fatigue, and cognitive changes can all affect concentration and comprehension.

Furthermore, disparities in access to educational resources can also pose challenges, as socioeconomic factors, geographic location, and healthcare systems influence patients' opportunities to receive comprehensive education. Therefore, addressing these barriers is crucial in the pursuit of equitable patient education [28].

Innovative Approaches to Patient Education

In recent years, innovative methods have emerged to enhance patient education. Digital platforms, including telemedicine, mobile applications, and online resource centers, have transformed how information is conveyed. These technologies offer the advantage of accessibility and can provide patients with tailored information based on their specific conditions and treatment paths. Online communities can also serve as a vital resource, allowing patients to share experiences, challenges, and triumphs, further enriching their understanding and providing emotional support.

Healthcare providers are increasingly recognizing the importance of education as an integral part of holistic patient care. Initiatives such as workshops, seminars, and peer education programs can help disseminate critical knowledge more widely, ensuring that patients are well-informed and supported throughout their journey [29].

Psychosocial Support: Addressing Emotional and Mental Health:

The diagnosis of a brain tumor is often an overwhelming experience for patients and their families, marked by uncertainty, fear, and psychological distress. The intricate interplay of physical symptoms and the profound impact on cognitive and emotional well-being necessitates a holistic approach to treatment. While surgical interventions, radiation, and chemotherapy are pivotal in managing the disease, the psychosocial aspect of care plays an equally crucial role in improving the overall quality of life for patients. Psychosocial support encompasses a range of services designed to address the emotional, social, and mental health needs of individuals facing this life-altering condition [30].

Brain tumors can manifest in varied forms, ranging from benign to malignant, and each type presents distinct symptoms affecting not only physical health but also psychological states. Patients may experience cognitive impairments, personality changes, emotional lability, and increased levels of anxiety and depression. Additionally, the fear of mortality and the potential for altered life roles create a complex emotional landscape that can be challenging to navigate.

Studies have shown that up to 50% of brain tumor patients may experience significant psychological distress. Symptoms of anxiety and depression can exacerbate physical symptoms and can influence treatment adherence, thereby complicating the clinical course and overall prognosis. Addressing these psychosocial issues is crucial in ensuring that patients receive comprehensive, patient-centered care that recognizes the importance of mental health in the illness trajectory [30].

Components of Psychosocial Support

Psychosocial support for patients with brain tumors involves multiple components tailored to meet individual needs. This support can manifest in

various forms, including psychotherapy, support groups, counseling, pharmacological interventions, and family therapy [31].

1. **Psychotherapy:** Talking therapies, such as cognitive-behavioral therapy (CBT), have proven effective in helping patients manage anxiety, depression, and coping skills. Psychotherapy provides a safe environment for patients to express their feelings and learn techniques to reframe negative thoughts and manage stress [31].
2. **Support Groups:** Peer support can be incredibly beneficial for cancer patients. Sharing experiences with others who are facing similar challenges fosters a sense of community and belonging. Support groups can offer emotional acceptance and practical insights into coping with the myriad challenges presented by brain tumors [31].
3. **Counseling Services:** Professional counselors and psychologists trained in dealing with cancer-related issues can provide one-on-one support for emotional difficulties. These services can help patients articulate their fears, promote emotional adjustment, and develop coping strategies that facilitate resilience [31].
4. **Family Therapy:** Brain tumors do not only alter a patient's life; they impact family dynamics, roles, and emotional health. Family therapy can support loved ones, helping them understand the effects of the illness and improving communication within the family unit. This can also mitigate caregiver burden, promoting healthier relationships and emotional support systems [31].
5. **Pharmacological Support:** Medications may be necessary to alleviate severe symptoms of anxiety or depression. Psychiatrists can prescribe antidepressants or anxiolytics as needed, but these medications should be part of a larger psychosocial support strategy.
6. **Integrative Therapies:** Practices such as mindfulness, yoga, meditation, and art therapy are gaining popularity in cancer

care. These approaches can provide patients with tools to cultivate mindfulness and relaxation, lessening the emotional toll of cancer [32].

Importance of a Multidisciplinary Approach

Effective psychosocial support must be integrated into the wider healthcare framework for brain tumor patients. A multidisciplinary team, comprising neurologists, oncologists, nurses, psychologists, social workers, and rehabilitation specialists, can collaboratively address both medical and psychosocial needs. Each member of the team should be aware of the importance of emotional and mental health and work together to ensure patients receive comprehensive care that promotes overall well-being [33].

Regular assessments of psychological distress using validated screening tools can aid in identifying patients needing additional support. Early intervention is key; when psychological issues are detected early, managed care can lead to improved emotional outcomes, enhance treatment adherence, and, ultimately, improve quality of life.

Raising awareness about the psychosocial challenges faced by patients with brain tumors is imperative. Education campaigns can help demystify brain tumors and reduce the stigma associated with mental health issues. Community resources and support networks should be made widely accessible, ensuring that patients and families know where to turn for help [34].

Advocacy also plays a role in influencing healthcare policies to secure funding and accessibility to psychosocial support services. Continued research into the psychological aspects of brain tumor treatment, including the development of effective interventions and comprehensive care models, will be crucial in improving outcomes [35].

Collaborative Care: The Role of Multidisciplinary Teams:

Brain tumors represent a significant challenge in the field of oncology, affecting not only physical health but also psychological well-being. The complexities associated with diagnosing, treating, and managing brain tumors necessitate a sophisticated and comprehensive approach. Collaborative care, facilitated by multidisciplinary teams (MDTs), has emerged as a vital strategy in providing holistic

treatment to patients diagnosed with these life-threatening conditions [36].

Brain tumors can be classified as primary or secondary, with primary tumors originating in the brain tissue and secondary tumors (or metastases) spreading from other parts of the body. The treatment and management of brain tumors involve complex decision-making processes characterized by medical, surgical, and psychological considerations. Symptoms can vary widely, including seizures, cognitive dysfunction, visual disturbances, and changes in behavior, making diagnosis and treatment particularly challenging. Therefore, an integrated care model is essential to address the multifaceted needs of these patients effectively [37].

The Multidisciplinary Team Model

A multidisciplinary team for brain tumor management typically consists of a diverse group of healthcare professionals, each bringing unique expertise and perspectives. The composition of these teams may vary but generally includes:

1. **Neurosurgeons:** Specialists who perform surgeries to remove tumors and alleviate intracranial pressure. Their expertise is crucial in determining the operability of a tumor and devising optimal surgical strategies [38].
2. **Oncologists:** Medical specialists who manage chemotherapy and radiotherapy treatments. They assess the tumor type, stage, and patient health to recommend appropriate pharmacological interventions.
3. **Radiologists:** Professionals who utilize imaging technologies such as MRI and CT scans to identify and monitor brain tumors. Their interpretations are critical for accurate diagnosis and treatment planning [38].
4. **Pathologists:** Experts who analyze tumor samples to determine the specific type of brain tumor and its characteristics, which can significantly influence treatment decisions.
5. **Nurses:** Essential for providing continuous care, patient education, symptom

management, and emotional support throughout the treatment journey.

6. **Psychologists and Social Workers:** Mental health providers who assist patients and their families in coping with the psychological impact of a brain tumor diagnosis. They provide counseling, support groups, and resources for coping strategies.
7. **Rehabilitative Specialists:** Including physical and occupational therapists, who help patients regain function, improve mobility, and adapt to physical limitations resulting from treatment or the tumor itself [38].

This diverse composition of MDTs fosters open communication, aligning treatment strategies and ensuring that all aspects of a patient's well-being are considered. Regular meetings allow team members to discuss cases collaboratively, share insights, and devise comprehensive treatment plans tailored to the individual's needs [39].

Benefits of Collaborative Care in Brain Tumor Management

The implementation of multidisciplinary teams in the care of brain tumor patients offers numerous benefits that contribute significantly to patient outcomes.

1. **Holistic Approach:** Collaborative care promotes a patient-centered model that considers physical, emotional, and social needs. By integrating various disciplines, patients receive comprehensive care that acknowledges the interconnectedness of these domains [40].
2. **Personalized Treatment Plans:** MDTs can evaluate a patient's condition from multiple dimensions, leading to personalized treatment plans that maximize efficacy and minimize adverse effects. For instance, the collaborative input of a neurosurgeon and an oncologist can lead to better preoperative planning and postoperative management.
3. **Improved Communication:** Effective communication among team members ensures that everyone involved

understands the treatment plan and the patient's progress. This coordination is essential in addressing any complications swiftly and maintaining continuity of care [40].

4. **Enhanced Monitoring and Follow-Up:** With various specialists involved, patients benefit from close monitoring post-treatment. Regular follow-ups can lead to quicker identification of recurrence or new symptoms, allowing for timely interventions.
5. **Support for Patients and Families:** The psychological impact of a brain tumor diagnosis can be profound. MDTs include mental health professionals who provide critical support to patients and families, offering counseling and resources for coping with the emotional toll of the illness [40].
6. **Education and Advocacy:** Collaborative teams are positioned to educate patients about their conditions and treatment options, empowering them to make informed decisions regarding their health. They also serve as advocates for the patients' needs within the healthcare system [40].

Challenges in Collaborative Care

Despite the many advantages, some challenges can hinder the effectiveness of multidisciplinary teams. Communication breakdowns can occur despite best efforts, especially in large institutions where team members may not regularly interact. Differences in professional philosophies and approaches to care may also lead to conflicts concerning treatment modalities or priorities [41]. Additionally, logistic challenges, such as scheduling conflicts for team meetings or patient appointments, can disrupt the continuity of care.

Training healthcare professionals in collaborative practices is crucial in overcoming these challenges. Developing skills in teamwork, communication, and conflict resolution can enhance the efficacy of multidisciplinary teams, ultimately benefiting patient care [41].

End-of-Life Care: Palliative Approaches in Brain Tumor Management:

End-of-life care is a critical aspect of healthcare, particularly for patients diagnosed with life-limiting conditions such as brain tumors. As the leading cause of cancer-related mortality in the younger population, brain tumors present multifaceted challenges not only in terms of physical health but also in the psychological, social, and spiritual well-being of patients and their families. Palliative care, which focuses on providing relief from symptoms and improving quality of life rather than attempting to cure the disease, has emerged as a vital component of comprehensive brain tumor management [42].

Palliative care is an approach that aims to prevent and relieve suffering while promoting the best possible quality of life for patients with severe illnesses. It is characterized by a multidisciplinary strategy that encompasses pain management, psychological support, and attention to spiritual and existential concerns. The World Health Organization (WHO) describes palliative care as an essential component of comprehensive treatment, applicable from diagnosis through the survivorship phase, and importantly, extending to end-of-life care [42].

In the context of brain tumors, palliative care addresses various symptoms, including pain, nausea, cognitive decline, emotional distress, and other complications arising from the tumor itself, as well as from cancer treatments. The multifactorial nature of brain tumors necessitates a tailored approach that considers individual patient needs, preferences, and family dynamics [43].

Symptom Management in Brain Tumor Patients

One of the most significant aspects of palliative care for brain tumor patients is effective symptom management. This includes pharmacological interventions, as well as non-pharmacological strategies that aim to enhance comfort and minimize suffering [44].

Pain Management: Pain can occur due to the tumor's effects on surrounding neural structures, interventions, or treatments such as surgery, radiation, or chemotherapy. Opioids are frequently used as a primary treatment modality for severe pain, supplemented by adjuvant therapies such as

anticonvulsants for neuropathic pain. Non-pharmacological interventions, including physical therapy, acupuncture, and cognitive behavioral therapy, can also play a role in complementing pharmacological management [44].

Management of Neurological Symptoms: Patients with brain tumors may experience various neurological symptoms such as seizures, confusion, motor deficits, and speech difficulties. Palliative care teams are adept at utilizing medications like antiepileptics for seizure control, alongside interventions that involve speech and occupational therapy to facilitate daily functioning [44].

Psychological and Emotional Support: The diagnosis of a brain tumor can induce significant anxiety, depression, and existential distress. Palliative care provides access to mental health professionals who specialize in psycho-oncology. Psychologists, counselors, and social workers can help patients and families navigate emotional challenges and facilitate open discussions about fears and expectations regarding end-of-life issues [45].

Addressing Spiritual and Existential Concerns

Understanding the spiritual dimensions of care is particularly important in the management of patients facing terminal illnesses. Many patients express questions regarding the meaning of life, the nature of suffering, and what occurs after death. Palliative care acknowledges these spiritual concerns by involving chaplains and spiritual care professionals who can provide guidance and support that aligns with the patient's faith and personal beliefs. Engaging in advanced care planning is also crucial, allowing patients to express their values, beliefs, and preferences regarding end-of-life care [45].

Effective end-of-life care for brain tumor patients relies not solely on the expertise of oncologists but on a cohesive interdisciplinary team that includes palliative care specialists, nurses, social workers, psychologists, nutritionists, and spiritual care providers. Each member contributes a unique perspective that aids in creating a comprehensive and personalized care plan. Regular interdisciplinary meetings foster communication and coordination, ensuring that all aspects of a patient's care are aligned [46].

Apart from this, family involvement is integral to palliative care. Family members often take on caregiving roles and bear emotional burdens, necessitating their inclusion in care discussions. Educational resources, support groups, and respite care services are essential for families, providing them with the tools and emotional support they need during this challenging time.

Open and honest communication between healthcare providers, patients, and families is a cornerstone of palliative care. Clinicians must be trained to facilitate conversations regarding prognosis, treatment options, and preferences for care at the end of life. Utilizing a patient-centered approach involves active listening, empathetic engagement, and respect for the patient's autonomy in decision-making. Advance directives and POLST (Physician Orders for Life-Sustaining Treatment) forms can also help ensure that the patient's wishes are respected [46].

Research and Future Directions in Nursing Care for Brain Tumor Patients:

Brain tumors represent one of the most complex and formidable challenges in neuro-oncology, affecting patients and their families profoundly. These tumors can be primary (originating in the brain) or secondary (metastatic), and their management necessitates a multidisciplinary approach that encompasses surgery, radiation, chemotherapy, and supportive care. As frontline caregivers, nurses play a vital role in the care continuum for brain tumor patients, focusing not only on medical intervention but also on emotional, psychological, and social support [46].

Current Landscape of Nursing Care for Brain Tumor Patients

Nursing care for brain tumor patients is multifaceted, encompassing assessment, education, symptom management, and palliative care. Nurses are often the first healthcare professionals that patients encounter, making them pivotal in the education and management of patients' diagnoses and treatment plans. Research has demonstrated that nursing interventions can significantly enhance patients' quality of life and treatment outcomes [47].

1. **Assessment and Symptom Management:** Nurses are trained to perform comprehensive assessments that are critical

in identifying the varying and often subtle symptoms associated with brain tumors. Symptoms can range from neurological deficits like seizures and cognitive dysfunction to more general issues such as fatigue, pain, nausea, and depression. Research has shown that regular assessments and tailored symptom management strategies can greatly improve symptom control and enhance the patient's overall quality of life. New technologies, such as telehealth and remote monitoring, allow nurses to conduct ongoing assessments that can lead to timely interventions [48].

2. **Patient Education and Advocacy:** Nursing care extends beyond clinical treatment to encompass education and advocacy. Research emphasizes the importance of patient and caregiver education in enhancing self-management capabilities and informing decision-making. Nurses frequently provide guidance about treatment options, potential side effects, and the importance of follow-up care. Furthermore, recognizing the emotional burden associated with a cancer diagnosis, nurses are essential in advocating for psychological support services, facilitating access to mental health resources, and providing information about support groups and community resources [49].
3. **Interdisciplinary Collaboration:** Nursing care for brain tumor patients often requires collaboration with a variety of healthcare professionals, including oncologists, neurologists, social workers, and rehabilitation specialists. Current research suggests that integrated care models can greatly improve outcomes. For example, studies have found that coordinated care pathways enhance communication and streamline treatment, resulting in better management of both acute and chronic symptoms [50].

Future Directions in Nursing Care for Brain Tumor Patients

As research and technology evolve, the future landscape of nursing care for brain tumor patients promises to be dynamic and multifaceted. The integration of innovative therapeutic approaches, data-driven decision-making, and an emphasis on holistic, patient-centered care will shape the next generation of nursing interventions [51].

1. **Personalized Care Models:** One of the most promising directions in cancer care is the move towards personalized medicine. For brain tumor patients, this means that nursing interventions might soon be tailored to the individual's genetic profile and specific tumor characteristics. Research into biomarkers and genomic sequencing is expanding, and future nursing care could incorporate this data to better assess response to treatment and adjust care plans accordingly [52].
2. **Technological Innovations:** Technological advancements such as artificial intelligence (AI) and machine learning offer exciting possibilities for nursing practice. By integrating AI tools, nurses might be able to predict symptom trajectories and identify patients at risk of complications before they arise. Wearable devices can facilitate real-time monitoring of symptoms and functional status, allowing for prompt interventions. The incorporation of these technologies can improve nursing workflows, enhance patient engagement, and promote more timely and effective care [53].
3. **Emphasis on Psychological Support:** The psychological ramifications of brain tumors are profound and often underestimated. Research is increasingly highlighting the necessity for holistic care that addresses the mental, emotional, and spiritual needs of patients. Future nursing practice could incorporate evidence-based psychotherapy techniques, mindfulness-based interventions, and stress reduction strategies into care plans. Additionally, creating partnerships with psychologists and mental health professionals will ensure

that emotional care is an integral component of treatment [54].

4. **Research and Evidence-Based Practice:** Continuous research efforts are crucial in advancing nursing care for brain tumor patients. The establishment of nursing-led studies focusing on symptom management, patient education, and palliative care will yield vital insights into effective interventions. Encouraging nurses to engage in research activities and contribute to evidence-based practice will enable the profession to remain at the forefront of patient care innovations [55].
5. **Advocacy for Policy Changes:** As the landscape of healthcare continues to evolve, advocacy for policy changes that benefit brain tumor patients must remain a priority. Nurses, as patient advocates, can play a pivotal role in shaping healthcare policies that enhance access to care, promote equitable treatment options, and support funding for research initiatives. Continued collaboration with professional organizations, healthcare systems, and legislative bodies will be essential in ensuring that the needs of brain tumor patients are adequately addressed [56].

Conclusion:

In conclusion, nursing care for patients with brain tumors is a vital component of the holistic management of this complex and challenging condition. Given the multifaceted nature of brain tumors and their impact on physical, emotional, and social well-being, nurses are uniquely positioned to provide comprehensive care that addresses the diverse needs of patients and their families. Through thorough assessments, effective symptom management, and compassionate patient education, nurses can empower individuals to actively participate in their treatment plans and improve their quality of life. Furthermore, fostering a supportive environment that emphasizes emotional and psychological support is crucial, as many patients experience anxiety, depression, and uncertainty related to their diagnosis.

Collaboration with multidisciplinary teams enhances the effectiveness of nursing interventions and ensures that patients receive well-rounded care

tailored to their unique circumstances. As advancements in research and treatment options continue to evolve, the role of nursing in the care of brain tumor patients will remain critical. Ongoing education, advocacy, and research are necessary to further develop nursing practices that meet the complex needs of this population, ultimately leading to improved outcomes and enhanced patient experiences. By prioritizing a comprehensive approach, nurses can significantly contribute to holistic care that respects the dignity and humanity of each patient battling this difficult diagnosis.

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