

Mindful Care: Nursing Strategies in Traumatic Brain Injuries: A Brief

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ABSTRACT

A literature review was conducted to further analyze nursing care for patients with traumatic brain injuries (TBIs), the purpose of this literature review is to emphasize the important role of the nurse throughout the various stages of patient care and management. This paper highlights the key components such as nursing assessments, patient and family education, ethical considerations, and the future of TBI care. Exploring the aspect of TBI nursing care, that starts from the initial assessment and appropriate interventions to the need for long-term follow-up and quality of life improvements. In conclusion, competent nursing care is essential for the ongoing care of TBI patients. However, ongoing research is essential to ensure up to date care if provided for TBI patients.

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Traumatic Brain Injuries (TBIs) are a daunting public health challenge, that demands a delicate and interdisciplinary approach for nursing care. TBIs contain a multifaceted dimension, nursing care stands as the backbone, which plays a pivotal role in the holistic care and rehabilitation of those affected. This literature review seeks to discuss the intricate process of nursing that includes relevant interventions, assessments, and challenges that TBI patients face. The purpose of this review is to illustrate the diverse facets of nursing care and the involvement of care continuum for individuals with traumatic brain injuries, and secondly, identify any gaps within current literature that may benefit from further research. The aim is to shed light on critical contributions of nursing in TBI management and emphasize the acute care setting and long-term rehabilitation care essential for optimizing patient outcomes.

Traumatic brain injuries are common causes of emergency room visits. It is also a common cause of death or disability for children and adults. Typically, the leading cause of a TBI is head trauma secondary to a motor vehicle related injury, falls, and assaults. In most cases patients will require admission in the ICU setting for extensive monitoring. Overall, the outcome for each patient varies depending on the severity of their injuries and secondary complications that they may acquire. Patients who have a GCS of 8 or less are found to have a mortality rate of 30% within the first two weeks of acquiring the injury [1]. Nurses play an important role in helping to manage these patients, providing basic nursing care, and monitoring patients for the development of secondary injuries or complications that may result due to their admission.

Nursing Assessment of Traumatic Brain Injuries

Individuals who suffer a traumatic brain injury require timely and precise nursing assessments; this often starts in high stress environments such as the emergency department. It is essential to obtain a good history regarding the mechanism of injury and

follow trauma life support protocol until the patient is stabilized. Nurses utilize standardized tools, such as the Glasgow Coma Scale (GCS), which serves as the primary steppingstone for evaluating the severity of the individual's neurological impairment. Along with triaging, the use of the GCS provides a baseline for subsequent assessment and nursing interventions. A moderate head injury would include a GCS of 9-12. Severe head injury would include a GCS score <8 [1].

In addition to using the GCS, nurses also work closely with the interdisciplinary team such as the emergency medical providers to conduct a thorough neurological assessment. The nursing assessment encompasses a thorough exam that includes evaluation of the individual's pupillary response, motor function, and verbal responsiveness. Continuation of the nursing assessment extends beyond the initial emergency department evaluation and into the acute care setting, such as the intensive care unit. The complex nature of traumatic brain injuries requires a watchful approach and continuous monitoring.

Further evaluation and diagnosis include computed tomography scans of the head. It is important to remember that no specific individual history or physical finding can eliminate the possibility of intracranial head trauma. The following standardized tools are used to determine whether patient should require further work up:

- New Orleans Criteria
- Canadian CT Head Rule
- Level A Recommendation
- Level B Recommendation

The watchful approach by nursing includes the monitoring of intracranial pressures, a key indicator of the brain's physiological status. The nurse will work collaboratively with other healthcare professionals, by interpreting ICP trends, being able to recognize signs of increased intracranial pressures, and implementing the appropriate interventions to reduce further complications.

Routine neurological checks are an essential part of the nursing assessment in TBI care. The purpose of neurological checks is to be able to track changes to motor responses, sensory functions, and cognitive abilities. Thorough and consistent documentation within the patient's chart enables the healthcare team to track changes, identify patterns, and tailor interventions as deemed appropriate for the patient.

Cognitive assessment includes evaluation of the patient's memory, attention, and executive functions. Cognitive deficits are often overlooked due to their subtle presentation, when the primary focus is on physical status. By utilizing standardized cognitive assessment tools, nursing staff can contribute to identification of neurological deficits and the formation of patient specific interventions, which ensures a comprehensive approach to rehabilitation and recovery [2].

Nursing assessments in the acute care setting are the foundation for immediate interventions and serve as the pathway for the patient to advance through the phases of care, which emphasizes continuity of evaluation and adaptability. By implementing protocols designed for the treatment of patient with traumatic brain injuries, there has shown to be a reduction in the death rate of patients with severe TBI and decreased aftereffects in patients with moderate TBI [3].

Nursing Interventions in Traumatic Brain Injuries

The primary goal when caring for a patient with traumatic brain injury is to prevent secondary injury, this is usually accomplished by ensuring the patient maintains a patent airway and proper ventilation, preventing secondary injuries due to hypercapnia, hypoxia or hypo perfusion. Applying the ABC method can be used when caring for patients with traumatic brain injuries.

Nursing intervention in patients with traumatic brain injuries extends to implementing an oversight of pharmacological interventions and ensuring symptoms are addressed while preventing further complications from arising. Nurses have an expertise in pain management, by administering analgesics and considering the delicate balance between pain relief and potential effects on neurological status. Nurses should administer opioids such as morphine with caution, nurses should closely monitor vital signs for signs of respiratory depression or altered level of consciousness.

There is changing practices for patients with traumatic brain injuries, the implementation of neuroprotective drugs adds complexity to nursing care. Nurses should administer medications based on hospital specific protocols governing medications designed to minimize secondary injury mechanisms.

In the intensive care setting nurses help manage ventilator settings for TBI patients. Nurses work closely with the respiratory therapist to optimize positive end expiratory pressure levels, ensure adequate oxygenation and prevent complications such as barotrauma. Beyond the neurological considerations nurses implement interventions that encompass prevention strategies for pressure ulcer and promotion of early mobility. Nurses implement the use of turning schedules and pressure relieving devices to prevent skin breakdown and pressure ulcers.

General measures that should be implemented include maintaining a neutral head position. The patient's head should be in a midline position at 30 degrees. This is the optimal position since it can

improve cerebral blood flow by improving cerebral venous drainage. Temperature control is important to maintain, fever should be avoided as it is shown to cause increased cerebral metabolic demand and further affects intracranial pressure [4].

While admitted in the acute care setting, nurses continue to support early mobility efforts. This eventually helps with the transition to rehabilitation and the collaborative work with physical and occupational therapist. Nurses will actively support the patient's mobility efforts and assist with exercises to promote early ambulation. By participating in routine exercises the patient will gain further functional improvement. Nursing interventions for traumatic brain injury patients are a dynamic role with specific strategies used to illustrate the practical application across various health care settings.

Challenges and Ethical Considerations in TBI Nursing Care

Patients admitted to the hospital setting with moderate to severe traumatic brain injury typically show signs and symptoms of cognitive impairments. These cognitive impairments can drastically affect their inpatient stay, leading to challenges for nursing staff and other healthcare professionals. Nurses must be knowledgeable about ways to modify care to accommodate patients with severe cognitive impairment. According to various literatures, nurses express common concerns when caring for patients with traumatic brain injuries. Some of those concerns includes

- (i) Prevention of Physical Injury
- (ii) Providing Adequate Support and Education
- (iii) Recovery Promotion
- (iv) Missing Signs of Condition Changes [5].

Although nurses expressed concern over these challenges, there are implications that education and development of nursing guidelines for management of patients with traumatic brain injury can help nurses adjust to the challenges and be more knowledgeable when caring for patients.

Caring for patients with traumatic brain injuries can have an emotional toll on nursing staff. Nurses witness the severity of injuries and have to come to terms with the uncertainties, along with experiencing family distress that can contribute to burnout and compassion fatigue. The implementation of effective coping strategies and support systems for nursing staff is critical to ensure staff are accepting of any challenges they may face. Interventions that can be used include debriefing sessions, counseling services, and fostering peer support.

A significant challenge that may arise when caring for a TBI patient includes decision making, especially when the patient is unable to provide informed consent themselves. Nurses are ethically responsible for involving surrogate decision makers in critical choices regarding treatment options and end of life decisions [6]. Furthermore, this topic can become an ethical dilemma for nursing staff when discussing end-of-life care with the surrogate decision maker if the patient cannot speak for themselves. These ethical considerations may involve decisions regarding withdrawal of care, organ donation, or the tradition to palliative care. For instance, the study showed that one of the biggest challenges faced by clinicians working with TBI patients is deciding when it is appropriate to tell a patient and family regarding a poor prognosis [6]. Thankfully, clinicians can frame these discussions based on their perspective and offer an empathic viewpoint for families and patients.

Patient and Family Education

Traumatic brain injuries are being increasingly viewed a chronic condition, with this, it requires extensive and long-term education for patients and their caregiver/families that pertain to symptoms and management [7].

Depending on the severity of the TBI will determine whether the education is directed towards the patient or family member/caregivers. If the TBI is classified as mild most education will be delivered in the emergency room to the patient directly. In cases where the TBI is moderate-severe, appropriate education may be delivered to the family/caregivers for the patient.

It is crucial to educate patients and their families early during their admittance, discussing the long-term effects of traumatic brain injuries is important for managing and providing a realistic expectation and can help with the promotion of goal setting. The nurse may help provide valuable information on potential cognitive, physical, and emotional challenges that may come following a TBI. This can help enable the patient to anticipate and navigate their recovery more efficiently.

The nurse discusses resources transparently with the patient and the family/caregiver regarding the rehabilitation process. Nurses play an important role in explaining the expectations and potential challenges commonly associated with rehabilitation and may include topics such as length of therapies and expected milestones. Once the patient can return home, the caregiver should be equipped to transition the patient to their home environment with the necessary home care skills. There are many ways nurses can help families and patients such as, providing hands on training, focusing on activities of daily living, medications, and signs of complications. Written material or educational videos can serve as ongoing resources for patients and their caregivers.

Quality of Life and Long-Term Outcomes

According to cross section study completed one third of patients who experienced TBI in the last 10 years suffer from unsatisfactory outcomes related to psychiatric residue [8]. This suggests that patients would benefit from early neuropsychiatric assessments after TBI. Patients who suffer from TBI require ongoing resources to ensure that their basic needs continue to be met and they maintain a quality of life.

Recovery in a patient can take quite a bit of time, months or years, depending on the severity of the TBI. Many patients who are discharged continue to have residual deficits in function or neurological. Patients often require speech, occupational, and physical therapy. The use of a social worker may also be required to assess the home environment to ensure it is safe and may help offer other resources to ensure they can maintain a quality of life. With the implementation of a team approach from different specialties, the morbidity of traumatic brain injuries can be decreased.

Once the rehabilitation process is mostly complete and the patient can return to a life of normality, it is important to discuss the impact of TBI on the patient's employment and social interactions. Nurses can help facilitate the discussion of workplace accommodations, social strategies, and community resources for ongoing care. By sharing relevant information on vocational rehabilitations and community resources it can help the patient and their family/caregiver with informed decision making.

Future Directions in TBI Nursing Care

According to a study completed there is a lack of effective treatment for TBI recovery in today's healthcare, although there have been advancements made over the past several decades [9]. The use of standard medical and surgical interventions plays an important role with the care in the acute setting for TBI patients. This is shown by an increased population of TBI survivors due to better management guidelines in the acute phase. However, goes on to explain how research of TBI should be shifted to evaluate neurorestoration and neurorehabilitation [9]. This emerging direction holds great advancement towards long term care, not only focusing on the acute phase but also promoting optimal neural function and quality of life.

Exploration of regenerative therapies can help open further avenues of care for TBI patients. Examples may include the use of stem cell treatment and neurostimulation. With further advancement and the implementation of these strategies, nurses can begin to monitor these therapies, ensuring the safety of patients and monitoring for neurological recovery. Patients may also benefit from task specific exercises that is aimed at rewiring their circuits to improve motor, cognitive and sensory functions.

TBI nursing care will continue to develop and include more personalized plans for patients. Nurses will continue to work with rehabilitation specialists, helping assess each patient's needs, preferences, and goals and tailor interventions to meet those needs. The use of personalized care plans considers each patient's own cognitive and physical challenges that may face during their recovery process.

Further advancements in technology can help with the future care of TBI patients. The integration of Telehealth can ensure that patients are able to have more access to their healthcare providers remotely. Embracing technology advancements helps with the accessibility of care and continued support of ongoing patient management.

Furthermore, rehabilitation practice can continue to evolve over time. Incorporating new techniques that may help create engaging and tailored intervention such as the use of virtual reality, gaming technologies and biofeedback mechanisms. Future research related to the ongoing advancements may help shed light on whether these techniques are effective in improving cognitive and motor function of TBI patients [10].

Conclusion

In conclusion, the nursing strategies and perspective on traumatic brain injuries encompasses a complex journey that starts with the initial assessment and continues to long-term follow-up and patient support. This comprehensive literature review explored the role of nursing in initial assessment, nursing interventions, challenging, ethical considerations, and patient centered care for TBI patients.

Future approaches for TBI patients include the integration of technological advancements and the evolution of nursing practices. The continued use of Telehealth, rehabilitation and community resources strategies can help redefine nursing care, by offering new opportunities for patients focused care and effective interventions.

While there have been significant advancements in the last decade, it is important to understand the need for ongoing research and collaboration. This can further close any gaps in knowledge, help

refine nursing interventions, and continue to foster teamwork between the interdisciplinary team. As these advancements in knowledge will help improve TBI nursing care and ensure that patients who are affected by traumatic brain injuries receive the highest standard of care throughout their recovery.

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