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Traumatic brain injury in the intensive care unit: a literature review on patient profiles

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ABSTRACT

Traumatic brain injury (TBI) is a critical condition that affects many patients in ICUs due to its high incidence and severity, usually caused by traffic accidents, falls, and assaults. The literature review highlights that most patients are young men, with severe injuries often measured by the Glasgow Coma Score. The adoption of standardized protocols and multidisciplinary approaches in the ICU has been shown to improve clinical outcomes, reducing mortality and complications associated with TBI.

Keywords: TBI, ICU, Profile.

INTRODUCTION

Traumatic brain injury (TBI) is a significant injury that affects public health due to its high incidence, mortality, and morbidity. Patients with TBI often require intensive care, and the Intensive Care Unit (ICU) is a crucial environment for the management of these cases (Johnson, Diaz., 2023; Voiriot *et al*., 2022). The ICU is a sector aimed at critically ill patients with different levels of impairment, promoting continuous and intensive care, until the balance of their clinical condition is restored. Among the various pathological cases treated daily in this unit, TBI stands out, being a determinant of morbidity, disability, and mortality within the group of neurological disorders (Rache *et al*., 2020; Soares *et al*., 2022).

This study aims to review the literature on the profile of patients with TBI admitted to the ICU, highlighting demographic characteristics, causes of trauma, severity of injuries, treatments adopted, and clinical outcomes. By better understanding these factors, we seek to provide a comprehensive view that

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can guide better clinical practices and prevention strategies, aiming at optimizing treatment and reducing mortality and complications associated with TBI.

MATERIALS AND METHODS

The present literature review was carried out through a search of scientific articles in the *LILACS, SciELO and PubMed databases*. The inclusion criteria for the selection of articles were: scientific studies available in full, in Portuguese or English, published between 2020 and 2024, with free and open access, that addressed the proposed theme.

Publications prior to 2020, productions unrelated to the topic, repeated articles, theses, literature reviews, and articles that presented only the abstract were excluded. In all, 49 scientific articles were found, of which 17 were selected as potential for this study.

RESULTS

Patients affected by TBI are mostly victims of traffic accidents, especially during weekends and festivities (Soares *et al*., 2022; Comin *et al*., 2022). The high incidence of TBI on Saturdays and Sundays is associated with increased alcohol intake followed by reckless use of motor vehicles during these periods, resulting in a higher number of injuries. The population most affected by TBI is predominantly male, aged between 15 and 28 years, reflecting a more prevalent risk behavior in this demographic group (Rache *et al*., 2020; Voiriot *et al*., 2022; Johnson, Diaz., 2023).

The reviewed studies indicate that the majority of TBI patients admitted to the ICU are men, with ages ranging from 20 to 40 years (Albuquerque *et al*., 2023; Silva Bezerra *et al*., 2020). The main causes of TBI include traffic accidents, falls, and assaults (Sili *et al*., 2024; Fonseca *et al*., 2024). The severity of injuries is often measured by the Glasgow Coma Score (ECG), with many patients having moderate to severe scores (Costa *et al*., 2023; Magalhães *et al*., 2023; Natalin *et al*., 2023). The treatment of these patients in the ICU involves a multidisciplinary approach, including intensive neurological monitoring, surgical interventions when necessary, intracranial pressure control, and ventilatory support (Buriti *et al*., 2024; Dantas *et al*., 2022). The implementation of standardized protocols for the management of TBI in the ICU has been shown to significantly improve clinical outcomes, reducing mortality and associated complications (Rezer *et al*., 2020; Santos de Farias *et al*., 2024; Ribeiro *et al*., 2023).

FINAL CONSIDERATIONS

The literature review reveals that patients with TBI in the ICU are predominantly young adult males, with traffic accidents being the main cause of injuries. The severity of injuries and clinical outcomes vary according to the management and readiness of intensive care offered.

The importance of standardized protocols and a multidisciplinary approach is highlighted to optimize the treatment and outcomes of these patients, in addition to the need for effective preventive policies to reduce the incidence of TBI. Future research should explore innovative interventions to improve outcomes for TBI patients in the ICU. TBI is a significant concern both hospital and socioeconomic, affecting many individuals annually and requiring actions to reduce its high incidence.

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