Headache Medicine

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Hospital outcomes of chronic post-traumatic headache in the Brazilian Public Health System: a decade of retrospective data

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Introduction
Post-traumatic headache (PTH) is a frequent neurological manifestation following traumatic brain injury, characterized by pain onset up to seven days post-trauma. Its presentation often resembles primary headaches like migraine and tension-type headache, causing functional impairment and increasing healthcare demand. Despite being a prevalent and disabling sequela with potentially prolonged symptoms, data characterizing its epidemiological and healthcare impact in developing countries remains limited. Analyzing PTH hospital outcomes in the Brazilian Unified Health System (SUS) over a decade helps clarify this healthcare burden and supports strategic health service planning.

Objective
To analyze the temporal trends, epidemiological profile, and hospital outcomes—specifically mortality and average length of stay—of admissions for chronic post-traumatic headache (ICD-10 G44.3) in the Brazilian public health system from 2015 to 2025.

Methods
An ecological, retrospective study was conducted using SIH/DATASUS microdata via TabWin. We analyzed all Brazilian hospital admissions with chronic PTH (ICD-10 G44.3) as the primary diagnosis between 2015 and 2025. Variables included sex, geographic region, admission frequency, in-hospital mortality, and average length of stay.

Results
Between 2015 and 2025, the SUS recorded 466 hospitalizations for chronic PTH. The annual volume started at 19 cases in 2015, reached a nadir of 32 in 2021, and grew continuously to a peak of 70 hospitalizations in 2025. This final year represented a 268% increase compared to 2015 and a 119% increase compared to 2021. Eight in-hospital deaths occurred, resulting in a 1.72% overall case fatality rate. Mortality dropped to zero in 2015, 2016, 2021, 2023, and 2025, while the highest volume occurred in the 2018-2019 biennium with two annual deaths. Sex distribution was balanced: 50.6% males (n=236) and 49.4% females (n=230). Regionally, the Southeast led with 183 hospitalizations (39.3%), followed by the Northeast with 119 (25.5%), together accounting for 64.8% of national cases. The Central-West (13.5%), South (13.1%), and North (8.6%) accounted for the remainder. Total hospital length of stay was 1,579 days. Annual stay durations tracked admissions, starting at 48 days in 2015, dropping to 72 days in 2021, and reaching an absolute peak of 275 days in 2025, suggesting greater case complexity during high-flow years.

Conclusion
Chronic post-traumatic headache showed a progressive and significant increase in hospitalizations within the Brazilian public health system over the last decade. Despite low in-hospital mortality, the condition presents a considerable hospital stay burden. These findings highlight the growing healthcare impact of this condition and reinforce the urgent need for improved strategies regarding diagnosis, management, and long-term care in the SUS.

Keywords:
Hospitalization
Epidemiology
Post-traumatic headache
Unified Health System
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