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Better Understanding It to Better Face It

MALIGNANT BRAIN NEOPLASMS IN BRAZIL'S NORTHERN REGION: EPIDEMIOLOGICAL ANALYSIS OF RISK FACTORS AND HOSPITALIZATION COSTS FROM 2019 TO 2024

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Introduction: Malignant brain neoplasms are characterized by uncontrolled cellular proliferation within the brain parenchyma or adjacent structures, exhibiting significant histopathological heterogeneity and posing substantial therapeutic challenges. Among these, gliomas—including astrocytomas, ependymomas, and oligodendrogliomas—are among the most prevalent primary malignant tumors of the central nervous system. In Brazil, despite their relatively low incidence, these neoplasms are associated with high morbidity and mortality rates, necessitating hospital admission for patient survival. Risk factors such as age and genetic predisposition further complicate the clinical landscape. Thus, regional epidemiological studies are crucial for identifying population susceptibilities and informing public health strategies. **Objectives:** To analyze the profile of hospitalizations due to malignant brain neoplasms in Brazil's Northern Region from 2019 to 2024, examining associated risk factors and discussing the impact of related hospital costs. **Methods:** An ecological, descriptive, and retrospective study of hospitalizations due to malignant brain neoplasms in Brazil's Northern Region between 2019 and 2024 was conducted using data from the Hospital Information System of the Brazilian Unified Health System (SIH/DATASUS). Variables analyzed included sex, age, race/color, type of care, mortality rate, temporal evolution, and total hospitalization costs. **Results:** Between 2019 and 2024, 4,145 hospitalizations for malignant brain neoplasms were recorded in Brazil's Northern Region. The majority of patients were male (n=2,299). Regarding race/color, white individuals accounted for the highest number of hospitalizations (n=304), while indigenous individuals had the lowest frequency (n=23). The most affected age group was 50–59 years (n=735), followed by 60–69 years (n=672) and 40–49 years (n=506); the lowest rates were observed in children under 1 year of age (n=20). Emergency care was the predominant type of admission (n=2,883). An increasing trend in hospitalizations was noted over the study period, with the lowest number in 2020 (n=582) and the highest in 2023 (n=769). The associated hospital mortality rate was 16.5%, and the total cost of hospitalizations for this condition in the region amounted to R$15,154,278.61. **Conclusion:** Age and race were significant risk factors for hospitalizations due to malignant brain neoplasms in Brazil's Northern Region. The high hospital costs recorded during the study period, coupled with the upward trend in hospitalizations, underscore the importance of understanding the disease's

epidemiological profile to inform health strategies aimed at reducing hospitalization needs.

Keywords: Brain neoplasms; risk factors; hospital costs