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Global Incidence of Malignant Brain and Other Central Nervous System Tumors by Histology, 2003-2007.

Leece R¹, Xu J¹, Ostrom QT^{2,3}, Chen Y^{2,3}, Kruchko C², Barnholtz-Sloan JS^{2,3}.

Author information

Abstract

BACKGROUND: Previous reports have shown that overall incidence of malignant brain and other central nervous system (CNS) tumors varied significantly by country. The aim of this study was to estimate histology-specific incidence rates by global region and assess incidence variation by histology and age.

METHODS: Using data from the Central Brain Tumor Registry of the United States and the International Agency for Research on Cancer's Cancer Incidence in Five Continents X (including over 300 cancer registries), we calculated the age-adjusted incidence rates (AAIR) per 100,000 person-years and 95% confidence intervals (95% CI) for brain and other CNS tumors overall, and by age groups and histology.

RESULTS: There were significant differences in incidence by region. Overall incidence of malignant brain tumors per 100,000 person-years in the US was 5.74 (95% CI=5.71-5.78). Incidence was lowest in Southeast Asia (AAIR=2.55, 95% CI=2.44-2.66), India (AAIR=2.85, 95% CI=2.78-2.93), and East Asia (AAIR=3.07, 95% CI=3.02-3.12). Incidence was the highest in Northern Europe (AAIR=6.59, 95% CI=6.52-6.66) and Canada (AAIR=6.53, 95% CI=6.41-6.66). Astrocytic tumors showed the broadest variation in incidence regionally across the globe.

CONCLUSIONS: Brain and other CNS tumors are a significant source of cancer-related morbidity and mortality worldwide. Regional differences in incidence may provide clues toward genetic or environmental causes and provide a foundation for broadening knowledge of their epidemiology. Gaining a comprehensive understanding of the epidemiology of malignant brain tumors globally is critical to researchers, public health officials, disease interest groups and clinicians, and contributes to collaborative efforts in future research.

KEYWORDS: Incidence; brain tumors; cancer registries; central nervous system tumors; global incidence

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