THE PREVALENCE OF CENTRAL NERVOUS SYSTEM TUMOURS AT CHRIS HANI BARAGWANATH ACADEMIC HOSPITAL PAEDIATRIC ONCOLOGY UNIT BETWEEN 2006 AND 2015

ABSTRACT

Introduction: Tumours of the central nervous system are a diverse group of diseases that constitute the most common solid malignancy in children, accounting for more than 20% of all childhood cancers in high-income countries. According to the South African Children's Tumour Registry (SACTR), over a period of 25 years, central nervous system tumours were the third commonest tumours in children following leukaemia and lymphoma.

Objectives: To describe the epidemiology, spectrum and outcome of central nervous system tumours in children and adolescents aged zero to 19 years at a Paediatric Oncology Unit (POU) at an academic referral hospital in Johannesburg over 10 years, 2006-2015.

Methods: This was a health-facility based retrospective descriptive study. Children and adolescents aged zero to 19 years with primary central nervous system tumours seen at the POU during the study period were eligible for enrolment. Metastatic tumours to the central nervous system were excluded. Data was analysed using Stata version 14. The Kaplan- Meier survival estimates were used for 5-year survival rates. The outcome event was death. Patients without events were censored at their last follow-up visit. Univariate Cox proportional hazards models were used to identify possible risk factors for death. Multivariate regression was applied to the factors identified by univariate models.

Results: Central nervous system tumours were diagnosed in 169/1231 new patients during the 10-year period thus constituting 13.73% of all tumours. The mean age was 7.83 years (s.d 0.4). The commonest tumours were astrocytic (58/169; 34.3%), followed by embryonal tumours with medulloblastoma being the commonest (26/169; 15.3%), craniopharyngioma (25/169; 14.8%), ependymoma (11/169; 6.5%), primitive neuroectodermal tumours (9/169; 5.3%) and tumours of the pineal region (8/169; 4.7%) (with confirmed pineoblastoma cases being 5 of the 8). Other uncommon tumours were choroid plexus tumours (3), intracranial germ cell tumours (2), tumours of nerves and neuronal-glial tissue (3), malignant peripheral nerve sheath tumour (2) and anaplastic large cell lymphoma (1).

One hundred and thirty-seven records were available for survival analysis. The overall survival rates at 1 and 5 years were 69% and 51% respectively. Patients diagnosed with medulloblastoma were less likely to die (p-value = 0.008) whereas those with high-grade tumours were 2.44 times more likely to die (p-value = 0.013) compared to low-grade tumours.

Conclusions: The spectrum of paediatric central nervous system tumours are similar to what has been reported in other high-income and low- and middle-income countries. Overall survival rates were comparable to those reported by other low- and middle-income countries.