

ONCODAILY MEDICAL JOURNAL

abstract

Delay in the Diagnosis of Pediatric Central Nervous System Tumors: Data From a Single Tertiary Care Center

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DOI: 10.69690/ODMJ-018-0425-3237



POEM's 4th Scientific Meeting, 2025, Jordan



Delay in the Diagnosis of Pediatric Central Nervous System Tumors: Data From a Single Tertiary Care Center

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Introduction: Central nervous system (CNS) tumors are among the most common solid tumors in pediatric patients. Timely diagnosis is crucial for effective management and improved outcomes. This study aimed to analyze the delay in diagnosis of CNS tumors at a single tertiary care hospital in Pakistan.

Methodology: A retrospective study was conducted on patients aged 0-21 years diagnosed with CNS tumors at Aga Khan University Hospital (AKUH) between January 2018 and December 2023. Data was reviewed from medical records via the hospital's database. Time to diagnosis was recorded as the duration between initial symptoms and the first radiological diagnosis.

Results: Three-hundred-thirty-eight patients were identified; 57.1% were male with a median age of 9 years (Interquartile range (IQR): 5-14). The most common symptom was headache (55.6%), followed by vomiting (47.9%). Low-grade gliomas (24.3%) were predominant, followed by high-grade gliomas (21.6%) and medulloblastoma (14.2%). The median duration from symptom onset to diagnosis was 2.1

months (IQR: 1.0-6.3), whereas the median duration of symptoms to oncologist/neurosurgeon visit was 3 months (IQR: 1.0- 8.6). Early tumor diagnosis correlated significantly with vomiting ($p<0.001$) and tumor location ($p<0.001$). Tumor diagnosis was within 2 months for medulloblastoma and high-grade glioma, and more than 2 months for Low-grade glioma and ependymoma ($P=0.003$).

Conclusion: Our findings depict a delay in referral to a neuro-oncologist or neurosurgeon. These warrants increased awareness amongst the general population and primary healthcare professionals. Public awareness campaigns and early recognition of symptoms, followed by timely referral to tertiary healthcare centers, are key for early diagnosis of pediatric CNS tumors.