ONCODAILY MEDICAL JOURNAL

abstract

Pediatric Neuroblastic Tumors in Armenia: Clinical features, Treatment Approaches and Patient Outcomes

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doi.org/10.69690/ODMJ-018-0425-839

SIOP ASIA 2025
SAUDI ARABIA

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Pediatric Neuroblastic Tumors in Armenia: Clinical features, Treatment Approaches and Patient Outcomes

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Introduction: Peripheral neuroblastic tumours (PNTs) are the most common extracranial solid tumors among children. PNTs include three histological variants: neuroblastoma, ganglioneuroblastoma and ganglioneuroma. Management of PNTs might include surgery, chemotherapy, radiotherapy and, in some cases, immunotherapy and stem cell transplantation. This study aims to analyze the clinicopathologic and treatment outcomes of pediatric patients with PNTs in Armenia.

Methodology: A retrospective analysis was done of the medical records of 62 patients (<18 years old) with PNT, treated at Muratsan Hospital Complex and Yeolyan Hematology and Oncology Center between 2008 and 2024.

Results: A total of 62 children with PNTs were evaluated, with a median age of 32 months. The cohort included 32 males. Neuroblastoma was the most common diagnosis (92%, n=57), followed by ganglioneuroblastoma (4.8%, n=3) and ganglioneuroma (1.6%, n=1). The median diagnostic delay was 41 days. Staging distribution was as follows: 50% (n=31) were stage M, 22.5% (n=14) stage L1, 17.7% (n=11) stage L2, and 9.7% (n=6) stage MS. Genetic analysis showed 32.2% (n=20) were MYC-amplified, 37% (n=23) were MYC non-amplified.

Risk stratification revealed 64.5% (n=40) with high-risk, 22.5% (n=14) with low-risk, and 12.9% (n=8) with intermediate-risk disease. The median delay between chemotherapy cycles was 8 days.

Surgical resection was performed in 56.4% (n=35), with a median delay of 23.5 days. MIBG imaging was conducted in 33.8% (n=21). The median delay of HDCT was 11.25 days. Two children received treatment with anti-GD2 antibodies. Of the 62 patients, 67.7% (n=42) are still alive, with 22 of these having intermediate or low-risk disease.

Conclusion: The primary issue of management of PNTs were delays in surgical therapy. The post-surgical period was uncomplicated. There have been significant improvements in the diagnostic and therapeutic approaches for neuroblastoma in recent years. Since 2024, immunotherapy has been part of our treatment approach compared to previous years.