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Proportional Distribution of Childhood Cancer Types and Subtypes in Nepal: A Multicenter Hospital-Based Epidemiological Study

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Abstract

Background

Childhood cancer is an important public health concern, with substantial variation in the distribution of cancer types and subtypes across populations. Understanding the epidemiological spectrum of childhood cancer is essential for strengthening cancer surveillance, planning specialized healthcare services, and allocating resources effectively. However, comprehensive evidence on the distribution of childhood cancer types and subtypes in Nepal remains limited. This study aimed to determine the proportional distribution of childhood cancer types and subtypes among pediatric patients in Nepal.

Methods

A multicenter, hospital-based epidemiological study was conducted among children aged ≤ 18 years diagnosed with cancer at four major hospitals in Nepal: B.P. Koirala Memorial Cancer Hospital, Bharatpur; Nepal Cancer Hospital and Research Center, Lalitpur; Bhaktapur Cancer Hospital, Bhaktapur; and Kanti Children's Hospital, Kathmandu, during 2015-2025. Demographic and clinical information was

extracted from patient records maintained in the medical record departments of participating hospitals. Ethical approval was obtained from the Nepal Health Research Council (NHRC; Ref. No. 465), and permission for data collection was obtained from all participating hospitals. Descriptive statistics were used to summarize study characteristics. Categorical variables were presented as frequencies and percentages, while continuous variables were summarized using means and standard deviations.

Results

A total of 2,180 pediatric cancer patients were included. Leukemia was the most frequently diagnosed cancer type (34.5%), followed by lymphoma (18.2%) and central nervous system tumors (12.7%). Cancer cases were more frequently observed among male than female children. A higher proportion of cases was observed among children from marginalized caste communities and among those residing in the Terai region. The distribution of cancer types and subtypes varied across demographic and geographic characteristics.

Conclusion

Childhood cancer in Nepal demonstrates a heterogeneous epidemiological distribution. These findings provide important baseline

evidence for strengthening childhood cancer surveillance, supporting early diagnosis, planning pediatric oncology services, and promoting equitable allocation of cancer care resources across Nepal.

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