



Growing Concern of Childhood Cancers in India

For Prelims: [Indian Council of Medical Research](#), [Cancer](#), Types of Cancer, [National Cancer Grid](#), [National Cancer Awareness Day](#)

For Mains: Cancer Prevention, Childhood cancer in India, Initiatives undertaken for control of cancer.

Source: DTE

Why in News?

Childhood cancers are emerging as a significant **public health concern in India**, with a notable percentage of cancer patients falling under the age of 15.

- A recently published study in the **India Pediatric Journal** sheds light on the prevalence, types, and challenges associated with pediatric cancers in the country.

What are the Key Highlights of the Study?

- **Study Details and Dataset:**
 - The study is based on the largest dataset on childhood cancers in India; from [National Cancer Registry Programme \(NCRP\)](#).
 - The NCRP was established by the [Indian Council of Medical Research in 1981](#).
- **Cancer Cases in India (2012-2019):**
 - India reported 1,332,207 cancer cases between 2012 and 2019.
 - Approximately 3.2% and 4.6% of these cases were in the age groups 0-14 years and 0-19 years, respectively.
 - Over 3% of all cancer patients in India are under 15; 4.6% under 20.
 - Leukaemias constitute a substantial burden, comprising nearly half of all cancers in the 0-4 and 5-9 age groups (42.1% and 42.5%, respectively).
- **Distribution of Cancers in Different Age Groups:**
 - Childhood cancers are divided into two age groups of 0-14 and 0-19 years based on the International Classification of Childhood Cancer's third edition.
 - For the 0-19 year age group, the leading cancers are leukaemia (36%), lymphoma (12%), bone (11%), and central nervous system tumour (10%).
 - The four leading groups of cancers among the 0-14 year age group were leukaemia (40%), lymphoma (12%), central nervous system (CNS) tumours (11%) and bone cancer (8%).
- **Non-Hodgkin Lymphomas and Gender Differences:**
 - Non-Hodgkin lymphomas show an increase with age, particularly in males, associated with hormonal and biological changes.
 - Malignant bone tumours affect more girls due to earlier skeletal maturity, as highlighted by the study.
- **Gender Disparities and Social Determinants:**
 - A higher proportion of male children are diagnosed with cancer, attributed to male birth

preferences and gender discrimination.

- The sex disparity in the cancer registry mirrors data reported in low- and middle-income countries (LMIC) and was attributed to low female literacy rates.
 - LMICs report 90% of the global cancer cases burden, but are awarded less than 0.1% funding for paediatric cancer research.

▪ **Challenges in CNS Tumor Registration in India:**

- CNS tumors in India may be treated in neurosurgical centers in multispecialty (general) hospitals rather than dedicated cancer centers.
- The NCRP currently only registers 'malignant' (defined as [World Health Organization](#) Grade 3 and 4) CNS tumors.

▪ **Global Disparities in Cancer Types:**

- The proportion of leukaemias and bone cancers appears higher globally compared to India, as revealed by a study in The Lancet Oncology (2017).
- The international distribution of CNS tumors (17-26%) is also greater than what's observed in India.

Key Terms

▪ **Cancer:**

- It is a complex and broad term used to describe a group of diseases characterised by the **uncontrolled growth and spread of abnormal cells** in the body.
 - These **abnormal cells, known as cancer cells**, have the ability to invade and destroy healthy tissues and organs.
- In a healthy body, **cells grow, divide, and die in a regulated manner**, allowing for the normal functioning of tissues and organs.
 - However, in the case of cancer, certain genetic mutations or abnormalities disrupt this normal cell cycle, causing cells to divide and grow uncontrollably.

▪ **Leukaemia:**

- Leukaemias are cancers of the white blood cells, which begin in the bone marrow.
- Leukaemia is cancer of the body's blood-forming tissues, including the bone marrow and the lymphatic system.
 - The lymphatic system is a network of vessels, tissues, and organs that helps maintain fluid balance in the body.

▪ **Lymphomas:**

- Lymphoma is a broad term for **cancer that begins in cells of the lymph system**.
 - There are two main types of lymphoma: Hodgkin lymphoma (Hodgkin disease) and non-Hodgkin lymphoma (NHL).
 - Hodgkin lymphoma can often be cured. The prognosis of NHL depends on the specific type.
- Both leukaemia and lymphomas originate in lymphocytes. However, leukaemia typically originates in bone marrow and spreads through the bloodstream, while lymphoma usually originates in lymph nodes or the spleen and spreads through the lymphatic system.

▪ **Bone Cancer:**

- It is caused when **unusual cells grow out of control in bone**. It destroys normal bone tissue.
- This variety of bone cancer occurs most often in children and young adults, in the bones of the leg or arm.

▪ **Central Nervous system (CNS) Tumours:**

- This tumour occurs when abnormal cells form in the brain or spinal cord.
- A CNS tumour can be either cancerous or benign. Both types need medical care.
 - A cancerous tumour is **malignant, meaning it can grow fast and spread to other parts of the body**.
 - A benign tumour means the tumour will often grow more slowly and will not spread to other parts of the body.

What are India's Initiatives Related to Cancer Treatment?

- [National Programme for Prevention and Control of Cancer, Diabetes, Cardiovascular Diseases and Stroke](#)
- [National Cancer Grid](#)
- [National Cancer Awareness Day](#)
- [HPV Vaccine](#)
- **Indian Pediatric Oncology Group (InPOG):**
 - InPOG was established in 2015 to develop multicentre childhood cancer clinical trials. InPOG is pursuing 31 clinical studies on paediatric cancer.
 - Paediatric cancer patients can access the latest therapies and protocols by participating in clinical trials.
 - In 2021, InPOG evolved into Indian Pediatric Hematology Oncology Group (INPHOG) Research Foundation.

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