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CHILDHOOD MALIGNANCIES PATTERN IN KAMPALA, UGANDA

*Ivan Emmanuel, Samuel david, odongo moses, Bwambale Elijah

Kampala Hospital, Central Region, Uganda

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Abstract: Childhood cancers represent crucial health problem worldwide. This is especially so in poorer countries, where childhood cancer detected in advance stage, so prognosis became poorer and also appropriate treatment is either not available or not affordable. Many children are never diagnosed at all, many are diagnosed very late, and when a diagnosis is made the treatment options may be limited. Therefore this 10-year retrospective study was undertaken to evaluate and documentation of the pattern of childhood cancers in local region. **Methods:** We reviewed 533 childhood (≤15 years) malignancies diagnosed at the cancer department of our hospital in a 10-year period. **Results:** The 533 malignancies comprised 7.8% of all cancers. The maligancies frequently seen in early childhood (1-10 years) accounted for 88%. Retinoblastoma (30.8%), Burkitt lymphoma (17.8%) and acute leukemia (15.9%) were the most common pediatric cancers. **Conclusions:** Childhood cancer with malignant lymphomas and leukemia is the most common. Retinoblastoma was alone is the most prominent type of malignancy. The significant increase in the number of cases and male excess in lymphoid malignancies requires further research into environmental agents that may be implicated.

Key words: acute leukemia; cancer; retinoblastoma; Burkitt lymphoma

INTRODUCTION:

Childhood cancers represent major health problem issue worldwide. Developing countries are suffering more with the childhood cancer because first of all they have the resource problem and them the detection was done on the advance stage so that the prognosis became poorer and also appropriate treatment is either not available or not affordable[1]. Children's are diagnosed at very late which make limitation in their treatment options. Pediatric cancer has become an increasingly important cause of childhood mortality and a major public health concern. In view of the higher birth rates and younger population in the developing countries, childhood malignancies are accordingly more prevalent than in the developed world. Childhood cancers comprise just 0.5%-2% of malignancies in the industrialized countries, but 4.3%-12.5% in the developing countries. Not surprisingly, over 80% of the global childhood cancers are estimated to occur in the developing countries.[2] In the low income developing countries, pediatric cancer survival is low, largely because of the poor access to good quality pediatric oncology care. Such data are essential for optimal channeling of scarce healthcare resources in the developing countries.[3,4] The need for up to date cancer data is particularly crucial in view of the striking ethnic and variations in regional that have been documented, sometimes even within a country[5]. Climatic, genetic and other environmental factors often exert considerable influence on the pattern of malignant tumors. Even within the African country differences have been noted in the pattern of childhood malignant tumors[6]. Understanding of the pattern of childhood malignancies in different geographical zones support the hypothesis of environmental factors in the etiopathogenesis of cancers in children.

Address of corresponding author:
Ivan Emmanuel
Kampala Hospital,
Central Region, Uganda

METHODS:

This study include 10-year (2004-2014) retrospective review of all childhood (0-15 years old) malignancies diagnosed at the oncology department of kampala hospital, central region, Uganda. Case files of all children admitted with malignancies in the hospitals during the study period were retrieved and relevant data were extracted and recorded in the study format. Such data included socio-demographic characteristics (age, sex, socio-economic class), types of the malignancy and affected area of body. Patients whose case files were missing or those with incomplete data were excluded from the study.

RESULTS:

A total of 533 childhood (0-15 years) malignancies were diagnosed and analyse for the 10-year study period, which comprised 39% of all pediatric cases and 9.6% of all cancers. 288 male and 245 female patients were reported, which had ratio of 1.2:1. Childhood malignancy were prominently seen in group of 1-5 years and group of 6-10 years, accounting for 48% and 40% respectively comparing with Malignancy in group of >10 years and group of <1 year. Retinoblastoma was the commonest childhood malignancy found in children with 30.8% of all childhood malignancies while Burkitt's lymphoma was the second most frequently encountered childhood malignancy with 17.8%, followed by leukemia (15.9%). From leukemia subtypes, acute lymphoblastic leukemia (ALL) is more commonly found in comparison to acute myeloid leukemia (AML), while other subtypes were relatively less in numbers.

Table 1. Type of malignancy observed

Malignancy	No.	%	Male	Female	<1 y	1-5 y	6-10 y	>10 y
Retinoblastoma	164	30.8	91	73	10	148	20	-
Burkitt's lymphoma	95	17.8	52	43	-	21	49	24
Leukemia	85	15.9	49	36	3	35	40	16
Rhabdomyosarcoma	40	7.5	15	25	-	15	11	11
Nephroblastoma	41	7.69	23	18	4	15	6	-
Other non-Hodgkin lymphoma	23	4.32	14	9	-	2	13	9
Hodgkin lymphoma	18	3.38	12	6	-	2	7	9
Malignant testicular tumors	4	0.75	4	-	-	1	2	-
Malignant ovarian tumors	13	2.44	-	13	-	-	5	7
Neuroblastoma	17	3.19	9	8	-	11	3	2
Skin Cancer	4	0.75	1	3	-	1	1	2
Kaposi sarcoma	7	1.31	5	2	-	2	3	2
Malignant bone tumors	7	1.31	4	3	-	1	2	2
Other sarcomas	15	2.81	9	6	3	2	3	8
Total	533	100	288	245	20	256	165	92

Leukemia most commonly found in the 1-10 year age group, particularly the group of 6-10 years. Other (non- retinoblastoma) malignant embryonal tumors (neuroblastoma, rhabdomyo sarcoma) were the 1/4th of the all the cancers, collectively comprising 15.2% of all childhood malignancy. The hemato-lymphoid malignancies (41.4%) (leukemias, lymphomas) were the most prevalent found, followed by embryonal cancers, namely retinoblastoma, nephroblastoma, neuroblastoma and embryonal rhabdomyosarcoma.

DISCUSSION:

The childhood malignancy with 9.6% of all cancers during the study period, higher than develop countries but consistent with studies in other parts of Africa this difference in develop and developing countries because of higher birth rates and which leads to larger proportion of young people and children in their population. Slight male preponderance (M:F=1.2:1) found, which is comparable to other around the world varying from 1.2:1 to 1.5:[7-10] The peak age incidence of pediatric malignancies was 48% in early childhood (1-5 years), followed by 40% in late childhood (6-10 years). Retinoblastoma which was the commonest childhood cancer found predominately in group of 1-6 years while in develop countries the commonest cancer was acute leukemia.[11,12]. High rates of retinoblastoma have also been documented in other African countries with this ophthalmic tumor among the largest childhood cancers in Tanzania, Ghana, Kenya, Malawi, Zambia, Congo. Cancer treatment is generally expensive and often times requiring prolonged hospital stay. The parents of these patients need to expense the costs of treatment including drugs, diagnostic investigations, meals and hospital stay. Therefore, many families of children with cancer experience financial difficulties. In developed countries medical expenses is paid by their health insurance plan for patients treatment. For individuals without health insurance or who need financial assistance to cover care costs, resources are available, including government sponsored programs and services supported by voluntary organizations[13].

On the other hand, in resource poor countries where health insurance and re-sources to help families with children with malignancies through financial difficulties are virtually nonexistent. Burkitt lymphoma was the leading childhood cancer, in other African studies and the peak age group was in late childhood (5-9 years)[8,-10].In Lagos, retinoblastoma has displaced Burkitt lymphoma as the commonest childhood malignancy[14]. Leukemia (mostly acute leukemia), the 3rd most frequent childhood malignancy comprised 15.9%. Though somewhat higher than several other Sub-Saharan African studies,[14,15] In the United States, Europe, Middle East and the Indian subcontinent, leukemia comprised a third of childhood cancers[1,17,18]. In addition, unlike in several solid malignancies which often permit survival for several months, acute leukemia can be rapidly fatal, thereby obviating late diagnosis. acute leukemia incidence was more is consistent with the other studies[19]. The high incidence of AML has also been reported among black American children in late childhood[20,21] .

CONCLUSION:

Childhood cancer with malignant lymphomas and leukemia is the most common. Retinoblastoma was alone is the most prominent type of malignancy . The significant increase in the number of cases and male excess in lymphoid malignancies requires further research into environmental agents that may be implicated.

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Conflict of interest:

The authors declare that there are no areas of conflicting interest.