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Paediatric Malignancies

Joseph D. E.
Jos University Teaching Hospital, Jos, Plateau State, Nigeria.

Abstract:

Background: This study aims to describe the pattern of paediatric malignancies in a tertiary hospital in North Eastern Nigeria.

Patients and Methods: This was a retrospective study of all paediatric malignancies diagnosed between June 2000 and May 2006 at the Federal Medical Centre, Gombe, Nigeria. Data were collected from the histopathology and haematology registers, as well as patients' case files and were analyzed.

Results: A total of 3,313 children were admitted within the study period. Out of this, 68(2.05%) children aged less than 15 years (M:F=1:1) had histologically confirmed malignancies. Malignant lymphomas were the most common (42.65%) of all the childhood malignancies, with Burkitt's lymphoma ranking highest (68.97%). Burkitt's lymphoma also accounted for 29.41% of all the malignancies. Other common malignancies included sarcomas 10(14.71%), neurofibromatosis 9(13.24%), nephroblastoma 8(11.77%), acute lymphoblastic leukaemia 5(7.35%) and retinoblastoma 4(5.88%). The less common paediatric malignancies were melanoma, invasive lobular breast carcinoma and squamous cell carcinoma of the breast, which together accounted for 4.41%.

Conclusion: Burkitt's lymphoma is the most frequently diagnosed malignant neoplasm in children at the Federal Medical Centre, Gombe.

Key words: Childhood Malignancies, Pattern.

Introduction

Childhood malignancies remain a problem[1]. Cancer is the leading cause of death in 'middle income' developing countries in children aged less than 15 years[2]. In the last decade, cancer assumed a greater prominence as one of the major causes of death[3,4], accounting for 8.7% of childhood deaths below the age of 15 years in the developing countries[5]. Globally, the annual incidence of childhood cancer is estimated at about 1 in 10,000 children less than 15 years of age[6]. This article describes the current pattern of paediatric malignancies in Gombe, North-Eastern Nigeria.

Patients and Methods

This was a six-year retrospective study of all histologically or cytologically confirmed malignant neoplasms seen in children less than 15 years of age between June 2000 and May 2006 at the Federal Medical Centre (FMC), Gombe. Nigeria. The hospital is a referral centre to at least five states in the north eastern part of Nigeria.

The data were extracted from the hospital histopathology and haematology departmental cancer registers and the admission and discharge records in Paediatric wards of the hospital.

Results

A total of 3,313 children aged less than 15 years were admitted during the 6-year study period. Sixty-eight (2.05%) out of these 3, 313 children had malignant neoplasia. Thirty four 34(50.0%) each were males and females (M=F= 1:1). Their ages ranged from 0.5 to 14 years (mean age = 8.5 years). Twenty six (38.24%) children were in the 10-14 year age group; 17(25.0%) children were in the 0-4 year age group (Table 1). The modal ages were 13 years in the males and 7 years in the females. The youngest child, a 7-month (0.58years) old boy had nephroblastoma. Two

Correspondence: Dr. Joseph, D. Emmanuel, P. O. Box 2226, Post Office Code 930001, Jos. Plateau State, Nigeria.

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Table 1: Age/Sex Distribution of Paediatric Malignancies seen at FMC, Gombe (June 2000 - May 2006)

S/No	Histologic Type	Age (Yrs)			Sex			Total
		0-4	5-9	10-14	M	F	M : F	
1.	Burkitt's Lymphoma	1	13	6	8	12	1:1.5	20
2.	Neurofibromatosis	1	3	5	4	5	1:1.3	9
3.	Nephroblastoma	7	1	-	6	2	3:1	8
4.	Osteogenic Sarcoma	-	2	5	5	2	2.5:1	7
5.	Non Hodgkin's Lymphoma	-	4	2	4	2	2:1	6
6.	Acute Lymphoblastic Leukaemia (ALL)	1	1	3	1	4	1:4	5
7.	Retinoblastoma	4	-	-	1	3	1:3	4
8.	Hodgkin's Lymphoma	-	-	3	2	1	2:1	3
9.	Rhabdomyosarcoma	3	-	-	2	1	2:1	3
10.	Scalp Melanoma	-	-	1	1	-		1
11.	Invasive Lobular Breast Carcinoma	-	1	-	-	1		1
12.	Squamous Cell Carcinoma	-	-	1	-	1		1
	Total	17	25	26	34	34	1:1	68

Table 2a: Frequencies of Paediatric Malignancies seen at FMC, Gombe (June 2000 - May 2006)

S/No	Histologic Type	Total No.	Percentage	No of Males	No of Females	Male-to-Female Ratio
1.	Lymphoma	20	42.65	4	15	1:1.1
2.	Sarcomas	10	14.71	7	3	1:0.4
3.	Neurofibromatosis	9	13.24	4	5	1:1.3
4.	Nephroblastoma	8	11.77	6	2	3:1
5.	Acute Lymphoblastic Leukaemia (ALL)	5	7.35	1	4	1:4
6.	Retinoblastoma	4	5.88	1	3	
7.	Scalp Melanoma	1	1.47	1	-	1:3
8.	Invasive Lobular Breast Carcinoma	1	1.47	-	1	
9.	Squamous Cell Carcinoma of the Breast	1	1.47	-	1	
	Total	68	100.0%	34	34	1:1

children, a boy and a girl, both aged 14 years, had Hodgkin's lymphoma and acute lymphoblastic leukaemia, respectively.

The most prevalent childhood cancer was malignant lymphoma which constituted 29(42.65%) of all the malignancies (Tables 2a and 2b). Burkitt's lymphoma constituted 68.97% of all the lymphomas and 29.41% of the neoplasms. Non-Hodgkin's lymphoma and Hodgkin's lymphoma accounted for 20.69% (6) and 10.35% (3) of the lymphomas,

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Table 2b: Frequencies of Paediatric Malignancies seen at FMC, Gombe (June 2000 - May 2006)

S/No	Histologic Type	Number	%
1.	Burkitt's lymphoma	20	29.41
2.	Neurofibromatosis	9	13.24
3.	Nephroblastoma	8	11.77
4.	Osteogenic sarcoma	7	10.29
5.	Non Hodgkin's Lymphoma	6	8.82
6.	Acute lymphoblastic Leukaemia (ALL)	5	7.35
7.	Retinoblastoma	4	5.88
8.	Hodgkin's Lymphoma	3	4.41
9.	Rhabdomyosarcoma	3	4.41
10	Scalp Melanoma	1	1.47
11	Invasive lobular breast carcinoma	1	1.47
12.	Squamous cell carcinoma	1	1.47
	Total	68	100.0%

respectively (Table 1). Burkitt's lymphoma was more prevalent in female children (1:1.5).

The second most common group of paediatric malignancies were the sarcomas which occurred in 10(14.71%) patients. Seven (10.29%) children had osteogenic sarcoma while 3(4.41%) had rhabdomyosarcoma. More males were affected in the sarcoma group.

Other malignancies included neurofibroma 9(13.24%), nephroblastoma 8(11.77%), acute lymphoblastic leukaemia 5(7.35%) and retinoblastoma 4(5.88%). Neurofibroma occurred more commonly in females while nephroblastoma had a clear male preponderance (3:1). Only the acute lymphoblastic variety of the leukaemias was seen with a clear female preponderance (1:4); most of them occurred at the age of 12 years.

Of the least common childhood malignancies there was one case (1.47%) each of invasive lobular breast carcinoma occurring at the age of 6 years and squamous cell carcinoma of the breast occurring at the age of 13 years.

Discussion

Malignant diseases constituted 2.05% of all paediatric admissions, with a prevalence of 31.3 cases per year in this study. These rates compare with the 1.67% and 1.67% in previous reports[2,7]. The prevalence rate in this study is low compared to an earlier report southwestern Nigeria[3]. This implies either a true or an apparent fall in the prevalence of childhood malignancies in Nigeria. Apparent fall may be due to either an under reporting and under diagnosis, or many patients with malignancies never got to the hospitals to be diagnosed.

The high prevalent rate of malignant lymphomas in this study, with Burkitt's lymphoma ranking highest, is similar to earlier reports[7-9]. However, whereas Burkitt's lymphoma constituted 19.6% of the lymphomas in one report[8], it accounted for 68.97% of the lymphomas in Gombe. The low prevalence of Burkitt's lymphoma, reported from Ibadan in southwestern Nigeria[10] contrasts with the present report. The reasons for this differential prevalence are unclear although low altitude, high humidity and high temperature and differences in socio-economic status do affect the regional distribution of Burkitt's lymphoma[11-15].

The sarcomas, comprising osteogenic sarcomas and rhabdomyosarcomas in a descending order of magnitude formed the second most common malignancies, accounting for 14.71% of cases in this study. This is similar to the 14.7% reported by Onwasigwe et al[2] except that rhabdomyosarcoma was commoner than osteogenic sarcoma in their study. Nephroblastoma had the highest frequency in the 0-4 year age group in this study as in others[2,8] except that these others reported higher frequencies. Acute lymphoblastic leukaemia (ALL) was the only variety of the leukaemias in the present report. ALL constituted over 80% of childhood leukaemias in other studies[16].

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Malignités Pediatriques

Resume

Arrière-plan: Cette étude a pour objectif de décrire les tendances des malignités pédiatriques dans un hôpital tertiaire au nord-est du Nigeria. ***Malades et méthodes:*** Il s'agit d'une étude rétrospective de toutes les malignités pédiatriques diagnostiquées entre juin 2000 et mai 2006 au Centre Médical Fédéral, Gombe, Nigeria. Les données analysées ont été rassemblées à partir des registres de l'histopathologie et de l'hématologie de même que des dossiers des malades. ***Résultats:*** En tout, 3,313 enfants ont été admis pendant la période de l'étude. Sur ce chiffre, 68 enfants (2,05%) âgés de moins de 15 ans (M:F=1:1) avaient des malignités confirmées histologiquement. Les lymphomes malins étaient les malignités infantiles les plus fréquentes (42,65%), le lymphome de Burkitt ayant le taux le plus élevé (68,97%). Le lymphome de Burkitt constituait aussi 29,41% de toutes les malignités. D'autres malignités fréquentes comprenaient des sarcomes chez 10 malades (14,71%), la neurofibromatose chez 9 enfants (13,24%), le néphroblastome chez 8 enfants (11,77%), la leucémie lymphoblastique aiguë chez 5 (7,35%) malades et le rétinoblastome chez 4 (5,88%) enfants. Les malignités pédiatriques les moins fréquentes étaient le mélanome, le carcinome lobulaire invasif du sein et le carcinome cellulaire et squameux du sein, qui tous les deux représentent 4,41% des malignités. ***Conclusion:*** Le lymphome de Burkitt est le néoplasme malin le plus fréquemment diagnostiqué chez les enfants au Centre Médical Fédéral de Gombe. ***Mots-clés:*** Malignités de l'enfance, tendance.

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