



STUDY OF SPECTRUM OF MALIGNANCIES IN PAEDIATRIC AGE GROUP BELOW 12 YEARS AGE GROUP

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ABSTRACT

Introduction: Childhood cancers are unique in the sense that they arise from embryonal cells, respond to treatment rapidly and the survival has improved dramatically. Appropriate management of pediatric tumors requires complete epidemiological data of pediatric tumors in different geographical areas.

Material & methods: During study period, 220 confirmed cases of Pediatric malignancy were studied for clinical profile, complications, outcome & treatment received.

Results: Total 220 patients of Pediatric malignancy were studied. 119 patients were of hematological malignancy, ALL being most common. 101 were non-hematological malignancy, Wilms tumour being most common. Febrile neutropenia was most common complication. 202 patients were discharged.

Conclusion: 5-12 year was most common affected age group & there was male preponderance. Fever was most common presenting symptom while lymphadenopathy was most common sign. Febrile neutropenia was most common complication. Majority of patients were treated by chemotherapy and were discharged.

KEYWORDS :

INTRODUCTION

In India cancer is the 9th common cause for the deaths among children between 5 to 14 years of age. The proportion of childhood cancers relative to all cancers reported by Indian cancer registries varied from 0.8% to 5.8% in boys, and from 0.5% to 3.4% in girls (1).

Rapid industrialization and urbanization, acquired genetic mutations due to pollution, industrial disasters, rampant insecticides use in the agricultural sector, tobacco and Gutka addiction among child laborers from lower socio- economic class and ozone layer depletion have been postulated as causes for rising pediatric cancer incidence (2).

Childhood cancers are unique in the sense that they arise from embryonal cells, respond to treatment rapidly and the survival has improved dramatically over the last two decades due to aggressive combine modality management. Because of the major advances in diagnosis, multi-modality therapy, development of rational use of combination chemotherapy and improved supportive care, the cure rate in childhood cancer has increased tremendously and over 60% of all childhood cancers are now curable. Appropriate management of pediatric tumors requires complete epidemiological data of pediatric tumors in different geographical areas (3).

So this study was conducted to find the spectrum of pediatric malignancies in our region as to study the facts and figures mainly in the rural area. This information can further be used to develop more effective management strategies for pediatric malignancies. Improved knowledge and awareness among the physicians, health care providers and general public is essential in case of pediatric malignancies.

MATERIAL & METHODS:

This prospective observational study was conducted in Department of Pediatric oncology, Government Cancer Hospital, Aurangabad Maharashtra from Oct 2018 to Dec

2020 after approval of Institutional Ethical Committee. After written informed consent, all Patients of Malignancies in Pediatric age group below 12 years of age were enrolled in the study. We excluded cases of aplastic anemia & non willing patients. After enrolment, detailed history and physical examination were done. All necessary investigations like CBC, PBS, Bone marrow aspiration and biopsy for morphology, IHC and cytogenetic, biopsy with IHC was done. Other investigations as per need were done. Supportive as well as definitive treatment in the form of chemotherapy, radiotherapy or surgery according to standard protocol was given for each type of malignancy. Study outcome was noted as death or survival.

RESULTS:

During study period, we enrolled 220 confirmed cases of pediatric malignancy. Table 1 shows general characteristics of patients of pediatric malignancies.

Table no 1. General characteristics of Pediatric malignancy patients

Characteristics	No of patients(n= 220)	Percentage (%)
Age distribution(years)		
1- 5	57	25.90
5 – 12	163	74.10
Sex wise distribution		
Male	143	65
Female	77	35
Total	220	100

There was male preponderance with 143 (65%) patients being male in our study group and 77 (35) were female with male to female ratio 1.8:1 as shown in Table 1. In present study, majority 163 (74.10 %) of the patients were seen in age group of (5-12) years with sex ratio (male: female) of 1.9:1. The next group affected was 1-5 years with 57 (25.10%) patients with sex ratio (male: female) 1.59:1.

Table no 2: Characteristics of patients in Pediatric malignancies.

Characteristics	No of patients	Percentages (%)
Symptoms		
Fever	184	83.63
Pallor	124	56.36
Bleeding	84	38.18
Malaise	168	76.36
Neck swelling	114	51.81
Palpable Mass	94	48.90
Bodyache	102	46.36
Abdominal distention	110	50
Sign		
Anaemia	138	62.72
Icterus	46	20.90
lymphadenopathy	146	66.36
Edema	30	13.63
Hepatomegaly	99	45
Splenomegaly	78	35.45
Kidney enlargement	32	14.54
Ascitis	15	6.8
Petechaie/ purpura/ecchymosis	68	30.90
Other	15	6.81

In present study the Fever was the most common symptom in 184 (83.63%) cases, followed by malaise in 168 (76.36%) cases as shown in Table 2.

As shown in table 2, in present study lymphadenopathy was most common sign in 146 (66.36%) cases, followed by anaemia in 138 (62.72%) cases.

In present study hematological malignancy were more common [119 (54.1%) patients], followed by non hematological malignancy [101 (45.9%)] as shown in Table 3. ALL was the most common hematological malignancy in 77 (64.7%) patients followed by HL in 16 (13.44%) patients while wilms tumour was most common non hematological malignancy in 25 (24.75%) patients followed by neuroblastoma in 20 (19.80%) patients.

Table no 3: Disease wise spectrum of hematological & non hematological malignancies in paediatric patients.

Haematological Malignancy	No of patient (%)	Non hematological Malignancy	Total no patient (%)
ALL	77 (64.7)	Wilms tumour	25 (24.75)
AML	7 (5.9)	Neuroblastoma	20 (19.8)
CML	6 (5.04)	Brain tumors	15 (14.85)
HL	16 (13.44)	Retinoblastoma	9 (8.91)
NHL	13 (10.92)	Hepatoblastoma	6 (5.94)
		Ewing sarcoma	9 (8.91)
		Osteosarcoma	4 (3.96)
		Rhabdomyosarcoma	12 (11.88)
		Yolk sac tumour	1 (0.99)
Total	119 (100)	Total	101 (100)

As shown in figure 1, Febrile neutropenia was the most common complication of Pediatric malignancy and was seen in 184 (28.13%) patient.

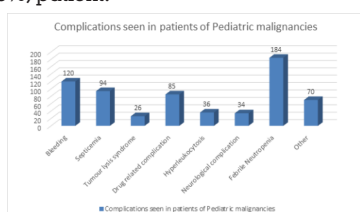


Figure 1: complications seen in patients of Pediatric malignancies

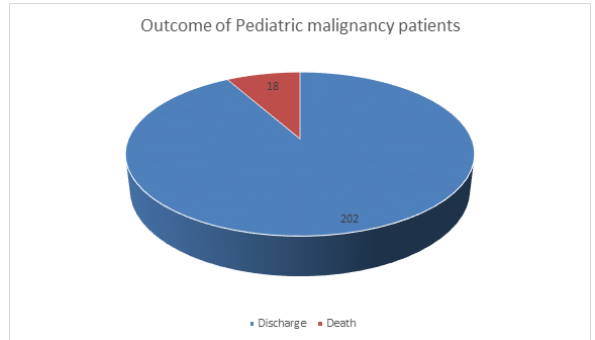


Figure no 2: Outcome of Pediatric malignancy patients

In present study 202 (91.81%) patients were discharged while 18(8.18%) patients died as shown in Figure 2.

During study period, 182 (82.7%) patients were treated by chemotherapy followed by radiotherapy in 116(52.7%) patients followed by surgery in 48(21.8%) patients.

DISCUSSION:

In present study, most common affected age group of patients was between 5-12 years, a finding similar to Chauhan et al (4) & Jabeen et al (5). But in contrast, study done by Ayodeji et al (6), observed that most common age was 0-5 years in (54.54%) cases. The reason for most common age group 0-5 years might be due to less sample size, and also study include participant in age group from 0 to 18 years of age.

A finding similar to Jabeen et al (5) & Dasgupta et al (7), in present study male preponderance was seen. study done by Sharma et al (8), observed almost equal sex ratio, with male being 155 (51%) cases and female being in 148(49%) cases. Reason of equal sex ratio may be because of study population includes age group 28 days to 19 years old in their study.

In present study, Fever followed by malaise were most common symptoms and lymphadenopathy as most common sign. A similar finding was noted by Siddaiahgari et al (9). Prajapati et al (10) observed that fatigue was the most common symptom followed by fever. Reason for this difference in Symptomatology in their study might be due to different age groups were studied with different sample size. In contrast observation were made by Prajapati et al (10) observed most common sign was splenomegaly. This might be due to; this study includes only leukemia cases and also inclusion different age group of population in study.

In present study we observed that Hematological malignancies were more common than non-hematological malignancies. Similar observation was made by Priyadarshini k et al (02) and Bhalodia et al (11). But Jabeen et al (5) found that non hematological malignancies were more common. It may be because of difference in number of cases studied and also different geographical location where study was conducted.

Among hematological malignancy, ALL was most commonly seen followed by Hodgkin's Lymphoma. Similar observation was made Malik et al (03) & Chauhan et al (4). Contrary to this, Jabeen et al (5) found, most common hematological malignancy was non-Hodgkin lymphoma. Finding in contrast to our study might be due to different sample size studied, and also different geographical location of hematological malignancy.

Among non-hematological malignancy, Wilms tumor was most commonly seen in present study. Similar observation was made by study done by Malik et al (03). A study done by (8), observed brain tumors followed by germ cell tumors were

most common. This might be due to study was done in age group from 28 day to 19 years which was different from our study population.

In present study febrile neutropenia was most common complication of pediatric malignancies. Similar finding was seen by Sharma et al (8) & Siddaiahgari et al (9). In contrast to our study Khalid et al (12), observed thrombocytopenia as the most common complication. This difference may be due to large duration of study done by Khalid et al (12) for nearly 17 yrs.

In present study majority of patient survived. Similar observation were noted in Advani et al (13) & Malik et al (03). In contrast study done by Slone et al (14) observed higher mortality rate than present study. Higher death outcome might be due to different age group included in study.

In present study 182 (82.7%) patients were treated by chemotherapy followed by radiotherapy 116(52.7%) patients followed by surgery 48(21.8%). Similar finding was noted by Hazarika et al (15). In contrast Pritchard-Jones et al (01) found that surgery alone was most common treatment. This contrast might be due to study population included only Wilms tumor.

CONCLUSION:

220 patients of pediatric malignancies were studied. Most common age group was 5-12 years while Males were more affected than females with male to female ratio 1.8:1. Fever was the most common symptom of pediatric malignancies and Lymphadenopathy as most common clinical sign. Hematological malignancy was more common than nonhematological malignancies. ALL was most common hematological malignancy and Wilms tumor was most common non hematological malignancy. Febrile neutropenia was most common complication in pediatric malignancies. In present study majority patients survived. Chemotherapy was most commonly used as treatment modality in pediatric malignancies.

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