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Pattern of Paediatric Cancer in Head and Neck region at Regional Cancer Centre, Raipur: A Retrospective Study

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Abstract :
Background: *In present study a retrospective analysis is done from the cancer cases reported to Department of Radiotherapy, Regional Cancer Centre (RCC) Raipur during study period from 2006 to 2010 for the number of children between age group 1-14 years, who were having cancers in head & neck region.*
Aim: *To study Pattern of cancers in Head & Neck region in age group 1-14 years during study period of five years from 2006 to 2010 in the state of Chhattisgarh.*
Methods and Material: *We retrospectively analyzed registry data of RCC Raipur for the patients having cancer in head and neck region including intracranial and intraorbital tumours and their types, among children of age group 1-14 years. In our study the total number of new cancer patients were 13,919, out of which 4.35% were paediatric patients, further out of which 26.89% patients were having cancers in head and neck region, further out of which 97 were males and 66 were female with M:F ratio of 1.5:1.*
Results: *Lymphomas were most common followed by retinoblastoma, intracranial tumours and rhabdomyosarcomas each 36.20%, 30.06%, 17.8%, 6.74% respectively.*
Conclusion: *The pattern of paediatric cancer reporting to RCC Raipur is found similar to other National and International studies.*
Keywords: *Pattern of Cancer, Paediatric HN cancer, SCCHN,*

I. Introduction

RCC Raipur is the only tertiary care cancer centre in the state of Chhattisgarh with yearly registration of 3000- 4000 new cancer patients. Majority of cancer patients are adult, with most common sites are head & neck, cervix, followed by breast.

Cancers among children are relatively uncommon. It remains one of the major causes of death in children between the ages of 0 to 14 years. Majority of cancer in children are leukemias and lymphomas. Leukemia is most common in India with relative proportion varying between 25% to 40%. 60-85% of all leukemias reported are acute lymphoblastic leukemia (ALL)[1]

Paediatric head and neck cancers constitute only about 5% of all childhood cancers [2]. Although major cause of childhood mortality in developing world is still malnutrition and infections, the incidence of childhood cancer are also rising in numbers.

II. Material and Methods

This retrospective study was carried out in the department of Radiotherapy, Regional Cancer Centre, Pt. J N M Medical College and associated Dr B R Ambedkar Memorial Hospital, Raipur, Chhattisgarh. The study period was of 5 years between January 2006 to December 2010.This study included all histopathologically confirmed head and neck cancers including intracranial and intraorbital tumors. The hospital records were analyzed for tumors occurring in age group between 0-14 years. The data obtained was analyzed for incidence of various tumors according to age and sex and compared with previous studies. Tumors were arranged according to their incidence in 0-4 year, 5-9 year and 10-14 year age groups.

III. Results

Total number of new cancer patients was 13,919 during the study period, of which 606 (4.35%) were pediatric patients (Table1 & Fig.1).Out of 606 patients diagnosed with pediatric cancers, 163(26.89%) patients were with head and neck cancers (overall 1.17%). 97 were male and 66 were female patients with M:F ratio of 1.5:1.(Fig.2)

Different head and neck cancers in decreasing order are listed in Table 2. Intraorbital tumour (30.06%) including retinoblastoma. Intracranial tumors (17.8%) also include medulloblastoma, ependymoma,

astrocytoma, meningioma, brain stem gliomas, olfactory neuroblastoma and posterior fossa tumors. Rest head and neck tumors (52.14%) included Hodgkin's and Non-Hodgkin's lymphoma, rhabdomyosarcoma, nasopharyngeal carcinoma, neuroblastoma, carcinoma parotid, round cell tumor, Langerhans cell histiocytosis, carcinomas of soft palate, epiglottis, and pharynx.

Hodgkin's and Non-Hodgkin's Lymphoma together (36.20%) constituted single largest group of tumors followed by retinoblastoma (30.06%) and rhabdomyosarcoma (6.74%). The incidence of tumor varied among different age groups. Retinoblastoma was commonest in 0-4 year age group followed by rhabdomyosarcoma. Lymphoma was commonest in 10-14 year age group. Equal incidences were seen in all age groups with slightly higher incidence (34.97%) in 10-14 year age group followed by 33.74% in 0-4 year age group and 31.29% in 5-9 year age group.

IV. Discussion

Present study included all types of pediatric head and neck cancers including intraorbital and intracranial tumors attending to the department of Radiotherapy. Being Regional Cancer Center, and only tertiary care cancer centre in the state, all the cases are referred to the department for different modalities of treatment including radiotherapy, surgery, chemotherapy, pain and palliative care. We are maintaining records since 1979 in files and with database in computer since 2006.We are also registered under National Cancer Registry Programme (NCRP) since 2011 and now been part of POCSS. So we are the major source of information for assessing the disease pattern in community in the state of Chhattisgarh.

The overall incidence of pediatric cancers was 4.35% which was found fair comparable to study by Jabeen S et al [3], but it is slightly higher than Indian data (3.58%) and another study by Rathi et al[4, 5]. Excluding intracranial and intraorbital tumors, the incidence of pediatric head and neck cancer was only 0.60%.

A total of 66.26% children were presented after 5 years of age and maximum number of cases presented in age group of 10-14 years (34.97%). Male to female ratio was 1.5:1 which was found fair comparable to other studies[3,6] and a study by Sengupta et al where the malignant lesions were found predominantly above 5 years of age (69.81%), most cases (47.17%) occurring in age group of 10-12 years [6].

The results of intraorbital and intracranial tumors in which three most common cancer groups were lymphomas (36.20%), rhabdomyosarcoma (6.74%) and Neuroblastoma & nasopharyngeal carcinoma (4.9%), were found fair comparable to study by Sengupta et al. [6].

Similarly the incidence of lymphoma observed was 7%-60% among pediatric population. There was higher frequency of Hodgkin's disease in 10-14 years age group, which found in fair resemblance to other study by S.Jabeen et al [3]. Our study reveals that this disease occurs in lesser frequency under the age group of five years and has a male predominance, which was also found in fair resemblance with other studies.

Rhabdomyosarcoma, a malignancy of striated muscle, which is the most common soft-tissue sarcoma in children, and accounts for up to 60 percent of all sarcomas in the pediatric population 40 percent, occurs in the head and neck region. Nearly half of these occur in children under the age of five years [7]. In our study this disease was found in 9 cases out of 11 cases, of the age group less than 5 years. Rhabdomyosarcoma was found the second commonest tumor. This observation was similar to other studies. [8, 9, 10]

The overall number of cases of retinoblastoma was 9(30.06%), and was second most common childhood cancer after lymphoma (36.20%).75.51% cases were presented in age group 0-4 years and rest 24.49% cases presented after 5 year age. All these findings were in fair comparable to study by Jabeen et al. [3].

The results of lymphoma in 49 (30.06%) cases were also found in fair resemblance with study by Rapidis et al., which accounts lymphomas in 52.3% of all malignant neoplasms in children, and was the most common of all head and neck cancers followed by rhabdomyosarcoma and other soft-tissue sarcomas [11]. Further, our study results of lymphoma was found in fair resemblance to the study of Albright et al[12] which mentions lymphoma as the most common diagnosis in all series followed by thyroid and neural tumors. Sarcomas and salivary gland tumors are less common and squamous cell carcinomas are rare.

V. Conclusion

The pattern of pediatric cancer reporting to RCC Raipur is found similar to other National and International studies. This has become possible by maintaining our records not only for all kind of cancer patients but also for all age groups. This was also made possible by continuous up gradation of our institution with all type of modern technologies and other facilities, which enhanced our patient compliance and follow ups and consolidated our registry data. We need to follow similar strategies for the management of these patients as other institutions to achieve a better outcome.

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Figures and tables:

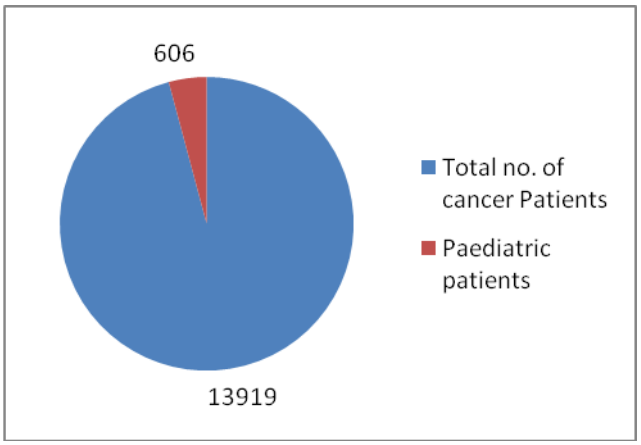

Figure 1.Percentage of paediatric Patients in RCC Raipur, C.G.

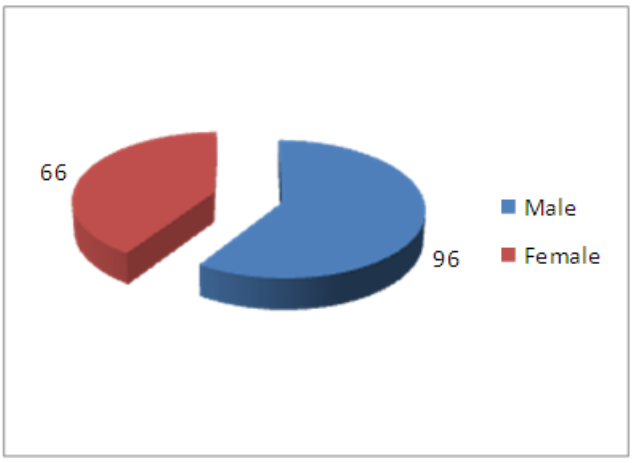

Figure 2 .Ratio of Male: Female (1.5:1) in Paediatric patients reported in RCC, Raipur C.G.

Table 1: Year wise percentage of total number of cancer patients and Paediatric patients

Year	Total no. Of Cancer Patients	Total No. of Patients with Paediatric Cancer
2006	2540	117(4.6%)
2007	2648	121(4.56%)
2008	2719	136(5%)
2009	2868	132(4.60%)
2010	3139	101(3.21%)
Total	13919	606 (4.35%)

Table 2: Head and Neck Cancers in Children of age group 0-14 yrs found in our study

No.	Type	0-4 yr		5-9 yr		10-14 yr		Total %
		M	F	M	F	M	F	
1.	Retinoblastoma	19	18	3	7	1	1	49 (30.06)
2.	Hodgkin Lymphoma	2	-	3	3	19	7	34 (20.86)
3.	Non-Hodgkin lymphoma	-	-	11	4	6	4	25 (15.34)
4.	Rhabdomyosarcoma	6	3	2	-	-	-	11(6.74)
5.	Medulloblastoma	2	-	5	-	-	3	10 (6.13)
6.	Ependymoma	2	-	2	-	-	2	6 (3.68)
7.	Ca Nasopharynx	1	-	-	-	1	2	4 (2.45)
8.	Neuroblastoma	-	-	2	-	-	2	4 (2.45)
9.	Carcinoma parotid	-	-	-	1	-	2	3 (1.84)
10.	Astrocytoma	-	-	-	1	-	2	3 (1.84)
11.	Malignant round cell tumour	-	-	1	1	-	-	2 (1.22)
12	Ca pharynx	-	-	1	-	1	-	2 (1.22)
13.	Meningioma	-	-	-	-	2	-	2 (1.22)
14.	Brain stem glioma	-	-	2	-	-	-	2 (1.22)
15.	Langerhans cell histiocytosis	1	-	-	-	-	-	1 (0.61)
16.	Olfactory neuroblastoma	-	-	-	-	-	1	1 (0.61)
17.	Ca epiglottis	-	-	1	-	-	-	1 (0.61)
18.	Ca soft palate	-	-	-	1	-	-	1 (0.61)
19.	Sarcoma lower lid	-	-	-	-	1	-	1 (0.61)
20.	Posterior fossa tumour	-	1	-	-	-	-	1 (0.61)
SubTotal		33	22	33	18	31	26	163
Total		55(33.74%)		51(31.29%)		57(34.96%)		