MEDICAL CHANNEL

Original Article

OCCURRNECE OF LIVER TUMORS WITH INCREASING AGE IN CHILDHOOD

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ABSTRACT:

Introduction: In children liver tumors are rare but in last decade their occurrence increased markedly. However, there has been enough research done on the treatment options and early diagnosis. In our country the occurrence is much more due to Hepatitis B and C, metabolic disorders and other etiological factors.

Objectives: The present study was aimed to provide a statistical analysis on the occurrence of liver tumors in Pakistani children with increasing age.

Methods: Slides / paraffin blocks of liver biopsies were collected from 54 patients under 15 years of age. The cases were of two categories i.e. retrospective & prospective with all the necessary clinical data included.

Results: In present study, although there were only 54 cases of liver tumor showing maximum number of cases either below 3 years as 18 (33.3 %) cases and 27 (50%) cases in 11-15 years age group. The minimum 9 (16.7%) cases were in 6-10 years age group. Among the types of malignant and benign tumors the present study showed the highest ratio of malignant hepatocellular carcinoma with cases of malignant hepatoblastoma than benign tumors.

Conclusion: There was a marked male predominance and male to female ratio was 5:1. Hepatocellular carcinoma in children is most common in this region of the world, it is common in Pakistan also because the liver disease that can lead to liver cirrhosis and necrosis may be due to Hepatitis B & C. Continued success in reducing childhood cancer mortality will require new treatment paradigms building on an increased understanding of the molecular processes that promote growth and survival of specific childhood cancers.

Keywords: Liver Tumors, hepatoma, hepatocellular carcinoma, Hepatoblastoma .

INTRODUCTION:

Liver tumors in general populations are rare, and overall incidence of childhood cancer has found to be slowly increasing in last three decades[1]. Histological diagnosis of tumors can show the duration of onset of liver cancer in children. More than 90% of tumors/ hepatoblastoma occur before the age of 4 years in chidren[2] , beside the reported fact that primary neoplasm in children are relatively rare[3] but In high-risk countries, liver cancer can arise before the age of 20 years[4]. The incidence of hepatocellular carcinoma in children is 10 times more in several Asian countries, than in North America. The occurrence of high incidence of liver tumors in early child hood is related to the incidence of perinatally acquired hepatitis B[5]. The overall survival rate is better in children with hepatoblastoma i.e. 70%, than hepatocellular carcinoma, only 25%[2,6,7]. These hepatic tumors are usually diagnosed in the first 6 months of life and are predominant in females[8]. The aim of present study was to observe occurrence of liver tumors with increasing age in male and female children. Hepatitis C has become the commonest cause of hepatocellular carcinoma in our country. Hepatitis B, C and metabolic dysfunction are associated with liver cirrhosis and hepatocellular carcinoma with the incidence rate of 1.5

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RESULTS:

TABLE 1: SHOWING THE AGE AND SEX DISTRIBUTION OF 54 CASES OF LIVER TUMORS

AGE	MALE	%	FEMALE	%	TOTAL	%
0-5	18	40	0	0	18	33.3
6-10	9	20	0	0	9	16.7
11-15	18	40	9	100	27	50.0
TOTAL	45	100	9	100	54	100

Male to female ratio is 5:1

FIG.1: SHOWING THE AGE AND SEX DISTRIBUTION OF 54 CASES OF LIVER TUMORS

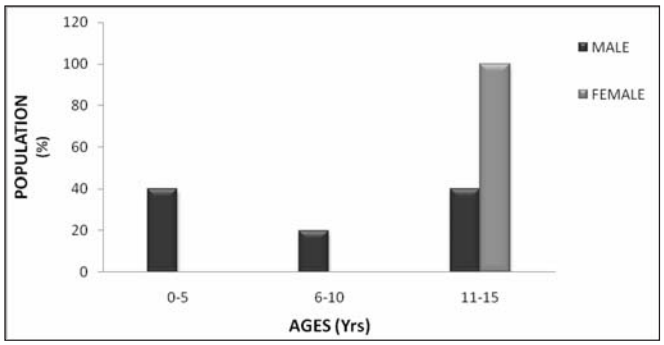


FIG.2: SHOWING OCCURRENCE OF LIVER TUMORS AMONG OTHER LIVER DISEASES IN CHILDREN

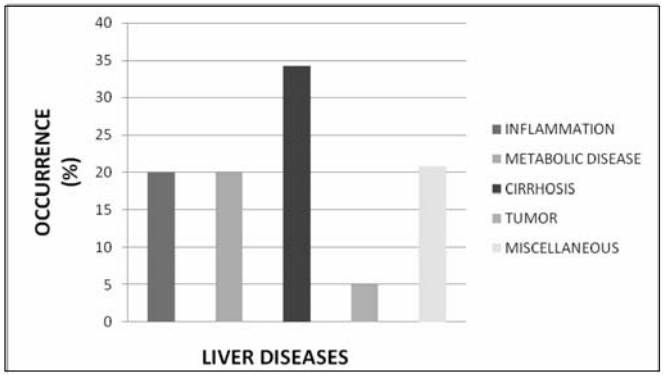
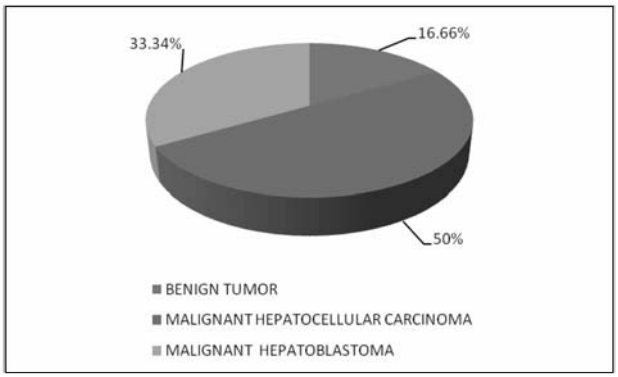


FIG.3: SHOWING OCCURRENCE OF BENIGN AND MLIGNANT LIVER TUMORS IN 54 CASES OF CHILDREN



per million (1975-95)[9,10,11]. Hepatoblastoma was the most common malignancy of the liver in children and its incidence was highest during the first year of life and decreased rapidly with increasing age. Hepatocellular carcinoma was the second most common malignancy of the liver which occurred primarily among adolescents. While /there was increased incidence of hepatoblastoma from 1975-95 in early childhood, than the decreased incidence of hepatocellular carcinoma in older children[9,10,11].

MATERIAL & METHOD:

Slides / paraffin blocks of liver biopsies from patients under 15 years of age are taken retrospectively.

RETROSPECTIVE:

1. 24 Slides / paraffin blocks of liver biopsies received during last 10 years in the department of pathology, Basic Medical Science Institute (BMSI), Jinnah Postgraduate Medical Center, Karachi.
2. 30 Slides / paraffin blocks of liver biopsies received in department of pathology, National Institute of Child Health (NICH), Karachi during last 10 years.

A clinical protocol including the particulars about the patients name, age, sex and diagnosis were obtained from the surgical pathology registers, request cards and copies of reports. Haemotoxylin and eosin (H&E) stained slides of all cases were used. In some cases special staining was performed to help in reaching a specific diagnosis. The various stains used besides H&E were:

i) Periodic acid Schiff (PAS) stain.
ii) Periodic acid Schiff-diastase (PAS-D) stain.
iii) Mason‘s trichrome stain.
iv) Gomori‘s reticulin stain.
v) Prussian blue stain.

All slides were reviewed under scanner (X10 X4), low power (X 10 X10) & high power (X10 X40) lenses.

DISSCUSSION:

The primary benign and malignant liver tumors, reviewed histologically with the help of different histochemical stains. These were hepatoblastoma, hepatocellular carcinoma and mixed mesenchymal tumors with the age range of 0- 13 years[12,13] showed marked male predominance [14] and increased frequency of malignancy (hepatoblastoma) in younger age group , up to 0-5 years of age [15]. Children from parents who have been exposed to occupation/ metals used in soldering and welding, petroleum, or paints are at

a higher risk for hepatoblastoma[16]. It is well known that biliary atresia can develop hepatocellular carcinoma rarely, and is usually occur in older children and sometimes has been reported in association with underlying liver disease[17]. Hepatitis B infection and HBs Ag positivity in infant, children and their mothers and siblings are related to hepatocellular carcinoma, was described in 70 malignant liver tumors in 0-15 years age group. They encountered 55 cases in youngest age group i.e. 0-5, 8 cases in 6-10 years and 7 cases in 11-15 years age group with male predominance [14]. In present study, although there were only 54 cases of liver tumor showing maximum number of cases either below 3 years as 18 (33.3 %) cases and 27 (50%) cases in 11-15 years age group. The minimum 9 (16.7%) cases were in 6-10 years age group. There was a marked male predominance and male to female ratio was 5:1. Hepatocellular carcinoma in children is most common in regions of the world where adult hepatocellular carcinoma is also highly prevalent, for instance in sub-Saharan, Africa and Eastern Asia[10]. In Pakistan hepatitis B and C are common. In our region viral genome, metabolic disorders and even contaminated food can contribute to increase the chance of these tumors especially Hepatocellular carcinoma[18]. Recent reports have also implicated parental smoking as a risk factor for hepatoblastoma[19, 20].

CONCLUSION:

The incidence of liver tumors are rare in childhood, there is increase tendency with increasing age with male predominance. Among the types of malignant and benign tumors the present study showed the highest ratio of malignant hepatocellular carcinoma with more cases of malignant hepatoblastoma than benign hepatoma. Survival rates for some childhood liver tumors primarily have continued to improve over the past decade. This study can be used for future research and provides an overview of current childhood liver tumor statistics to facilitate analysis of the impact of past research discoveries on outcome and provide essential information for prioritizing directions.

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