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HEPATOBLASTOMA- MULTIMODALITY TREATMENT AND OUTCOMES - A TERTIARY CENTRE EXPERIENCE

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KEYWORDS :

Hepatoblastoma (HBL) is the most common primary liver tumor in children and accounts for 1% of all pediatric cancers[1]. Preterm is a risk factor although most cases are sporadic, but some are associated with constitutional genetic abnormalities and malformations, such as the Beckwith-Wiedemann syndrome and familial adenomatous polyposis [2,3]. Over the last three decades, the annual incidence of Hepatoblastoma in children has gradually increased[4]. Extremely premature babies with a low birth weight have been reported to have a greatly increased risk of developing Hepatoblastoma. The increased survival rates of these premature babies might account for the increased annual incidence of Hepatoblastomas. Upto 60% of hepatoblastoma are unresectable on presentation[5].Due to chemoresponsiveness of hepatoblastoma neoadjuvant chemotherapy is used to downsize the tumor for surgical resection. This retrospective study reviews our experience with multimodality treatment in management of hepatoblastoma.

MATERIAL AND METHODS:

Records of all 37 patients diagnosed of hepatoblastoma in last 10 years from 2005-2015 was analysed for clinical presentation, AFP levels, treatment offered, complication and follow up. All patients underwent CT scan chest, abdomen pelvis. PRETEXT staging was assigned and decision was taken by multidisciplinary team. Neoadjuvant chemotherapy was given in 33 out of 37 patients in form on Cisplatin+Adriamycin(PLADO) every 3 weekly with imaging done after 3-4 cycles. These patients were given infusional Cisplatin on day 1 and followed by infusional doxorubicin on day 2and 3.Those found to have inadequate response were given 2 more cycles of NACT. After surgery adjuvant chemotherapy was given upto maximum 6 cycles.

DETAILS OF OUR PATIENTS-:

NO.	AGE	SEX	TYPE	AFP PRE- OP	NACT	ADJUVANT CT	SURGERY(L/R)	PRE TEXT	POST-SURGICAL STAGE	FOLLOW UP	AFP FOLLOW UP
1	4 8MTH	F	E	403880	2	1	LT.	II(L)	I	6 MTH	1.39
2	24MTH	F	E/F	60028	2	4	LT.	II	I	108MTH	3.16
3	3 6MTH	M	F	193360	4	2	RT.	II	II	12 MTH	1.45
4	2 4MTH	F	F	60000	1	5	LT.	II(L)	II	96 MTH	2.98
5	3 6MTH	F	E	359000	2	2	RT.	III	II	8MTH	6.80
6	36MTH	F	E	66700	4	2	RT.	III	II	60MTH	7.90
7	3 MTH	M	F	3000	0	6	RT.	II	I	60 MTH	3.68
8	1 2MTH	M	F	483	0	3	RT.	I	IA	60 MTH	2.89
9	1 2MTH	M	E	4675	3	3	RT.	III	IB	48 MTH	1.52
10	3 MTH	M	F	1149	4	2	RT.	II	I	8MTH	7.90
11	12 MTH	M	F	130000	1	4	LT.	I	I	8MTH	2.89
12	12MTH	M	E	30000	3	3	RT.	I/II	I	24 MTH	0.33
13	2 MTH	M	E/F	5400	4	2	RT.	I	IB	24 MTH	1.33
14	96MTH	F	E/F	20600	2	4	RT.	II	I	36MTH	5.36
15	1 MTH	M	E/F	27500	4	3	RT.	II	IB	24 MTH	4.14
16	24MTH	F	F	58344	3	3	RT.	II	IA	18 MTH	2.47
17	36MTH	F	F	3184000	4	2	RT.	II	IA	18 MTH	8.94
18	96MTH	M	F	70040	3	2	RT.	II	IA	18 MTH	5.17
19	48MTH	M	F	166000	3	4	RT.	II	I	17MTH	4.31
20	24MTH	F	F	240610	6	3	RT	III	II	16MTH	124.0
21	12MTH	F	E	6000	3	2	LT.	IV	II	15MTH	6.49
22	48MTH	M	F	18000	4	2	LT.	II	IA	15MTH	6.83
23	60MTH	M	E	7000	0	0	LT.	I	IA	14MTH	-
24	12MTH	M	F	583350	3	3	LT.	II	I	12 MTH	4.12
25	84MTH	M	F	104000	3	3	RT	III	II	12MTH	1.12
26	84MTH	M	F/E	-	0	6	RT.	-	III	6 MTH	-
27	108MTH	M	F	150000	6	-	INOPERABLE	IV	IV	11 MTH	41320
28	72MTH	M	F	360000	4	-	INOPERABLE	IV	III	7 MTH	6735
29	72MTH	M	F	1063500	4	2	INOPERABLE	IV	III	8MTH	23620
30	12MTH	F	E	922390	1	-	RT.	II	I	-	68560
31	132MTH	M	E	2,09,100	4	4	RT	III	II	24MNTH	12.1
32	11MNTH	F	F	67,121	3	3	RT	II	I	14MNTH	1.3
33	24MNTH	M	F	1,80,000	5	-	INOPERABLE	IV		9MNTH	25624
34	22MNTH	M	F	297470	5	3	LT	III	II	15MNTH	2.71
35	36MNTH	M	F	20,00,00	5	3	RT	III	II	24MNTH	1.66
36	12MNTH	M	E	1,21,000	4	-	INOPERABLE	IV	III	12MNTH	15,000
37	24MNTH	M	E	10,000	3	4	LT	III	II	13MNTH	1.8

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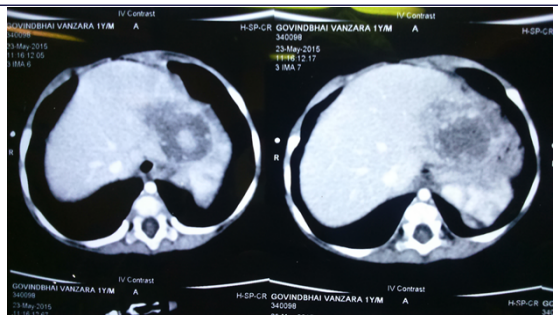

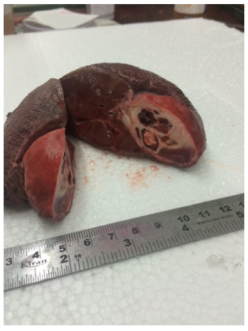

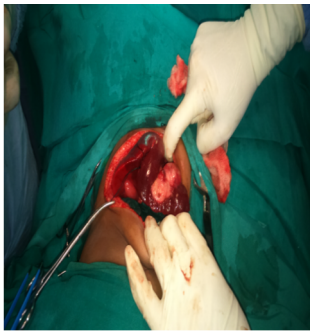

RESULTS

In our study hepatoblastoma was more common in male with M:F ratio 2.2:1. None of the patients were preterm and none associated with any congenital anomaly. The most common presentation was with abdominal lump followed by abdominal pain. One patient presented with ruptured hepatoblastoma. The median age of presentation was 36.4 months. There was only two cases who were HbsAg positive. All patients had palpable hepatomegaly and raised AFP levels. The mean AFP level was 286172.7.According to the PRETEXT staging 6 patients has stage I(17.94%), 18 patients had stage II(48.7%),9 patients had stage III(23.07) and 4 patients had stage IV(10.25%).Almost all patients showed changes in resection margin after chemotherapy which was confirmed by CT scan. Among 37 patients only 4 patients were candidate for surgery as they had small lesions on presentation. Both neoadjuvant chemotherapy and adjuvant chemotherapy were well tolerated and only two mortality were reported. One patient died on Post operative day 1 and other died 5 days after being discharged from hospital. Only 3 patients deembed inoperable initially remained inoperable after 6 cycles of chemotherapy. 2 cases were inoperable due to cirrhotic liver. Mean follow up was 25.63 month and all patient were evaluated by USG and AFP levels to rule of recurrence or residual disease. 6 patients were lost to follow up while 2 cases had recurrence. One patient had recurrence in left lobe of liver which underwent resection with negative margin. Another patient who presented with ruptured hepatoblastoma developed peritoneal and local recurrence. Survival was 96.7% at 2 years.

DISCUSSION

Hepatoblastoma is most common primary tumor of liver. The median age of presentation was 36 months. The majority of patients had PRETEXT stage II and III on presentation which was similar to other case study in India. International Childhood Liver tumor Strategy Group (SIOPEL) guidelines, which are widely used, recommends PRETEXT staging and the strategy of neoadjuvant chemotherapy followed by surgery and adjuvant chemotherapy[6]. We had resection rate of 90% post chemotherapy. Primary surgery is advisable in small lesions.4 patients(10%) were considered for primary surgery and then adjuvant chemotherapy was given. AFP levels are indicators of disease recurrence and follow up. Chemotherapy pre or post surgery has definite survival advantage and also increases the resection rate. 3 (9%) patients remained inoperable even post Neoadjuvant therapy. Transplantation of liver should be opted in inoperable cases. We compared the Outcomes of our studies withother studies in India in following table-

	Bajpai et al.7	Shanmugam et al.8	Manuprasad et al9	Our Study
Patients	10	30	27	37
Age	7.2month	34 month	12 month	36 month
Staging(PRETEXT)	II-30% III-20% IV-50%	I-3% II-43% III-23% IV-30%	I-11% II-41% III-41% IV-7%	I-18% II-49% III-23% IV-10%
Neoadjuvant Regimen	PLADO	PLADO	PLADO	PLADO
NACT	10	30	23	33
Resection	10	19	15	30
Median Follow Up	36 months	30 months	51 months	25.6 months
Survival	80%	93%	69.7%	96.7%

CONCLUSION:

Multimodality treatment in management of hepatoblastoma has good outcome and should be considered in all patients of hepatoblastoma. Liver transplantation remains an option for cases found to be inoperable after neoadjuvant chemotherapy.

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