

### Clinical Study of Hepatoblastoma in Children

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**Purpose:** By the help of neoadjuvant chemotherapy, resectability and survival rate of hepatoblastoma have improved. To evaluate recent treatment outcome of hepatoblastoma, pediatric hepatoblastoma in our institute were reviewed.

**Methods:** The medical records of 11 pediatric hepatoblastoma patients were analysed retrospectively.

**Results:** All but one patient old were under 3 years old at diagnosis (range: 1-150 months). The male to female ratio was 6:5. Two patients were treated without neoadjuvant chemotherapy. One of them received right lobectomy for initially resectable tumor. Another one patient received a liver transplant for multiple unresectable tumors and liver cirrhosis. Nine patients received neoadjuvant chemotherapy based on the CCG-823F or CCG-8881A protocol. Two of them showed lung metastasis, but the metastatic nodules were reduced in size and number in one patient, disappeared in another patient after neoadjuvant chemotherapy. The mean tumor size at diagnosis in 9 patients was 10.5 cm (range: 6.4-14 cm). After neoadjuvant chemotherapy, the mean size reduction was 53% (range: 37-67%) in 9 patients. In 8 out of 9 patients (88%) a curative resection was performed after average 4 cycles of neoadjuvant chemotherapy. All the patients were followed for a median duration of 21 months (range: 5-88 months). Nine of all 11 patients are still alive without tumor recurrence.

**Conclusion:** Neoadjuvant chemotherapy was able to increase the resectability of an initially unresectable hepatoblastoma and should not be abandoned even with a distant metastasis such as the lung. Liver transplantation is a good back-up for an unresectable hepatoblastoma. (J Korean Surg Soc 2002;63:337-341)

**Key Words:** Neoadjuvant chemotherapy, Hepatoblastoma, Liver transplantation

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10  
100 1.6 (I)  
가 가 40% 10%  
가 가  
11

1994 10 2002 1  
11  
(neoadjuvant chemotherapy)  
the Children's Cancer Group (CCG)-823F protocol (cisplatin: 90 mg/m<sup>2</sup>, adriamycin: 20 mg/m<sup>2</sup>), adriamycin CCG-8881A protocol (cisplatin: 90 mg/m<sup>2</sup>, vincristine: 1.5 mg/m<sup>2</sup>, fluorouracil: 600 mg/m<sup>2</sup>)

-fetoprotein  
가

50  
☎ 135-710,  
Tel: 02-3410-3464, Fax:02-3410-0040  
E-mail: sklee2@samsung.co.kr  
: 2002 7 10 , : 2002 7 18  
2002 5

1994 10 2002 1  
 5 , 12 1 11 6  
 (1 33 ) (Fig. 1). 10 3  
 가 , 가 3 , 1 , 가 1 ,  
 1 . 2  
 (hemihypertrophy)가 , 1  
 Beckwith-Wiedemann ,  
 , 10  
 1 .  
 1

(Fig. 2).

가 8 (73%), 가 2  
 가 1 (9%), 10.5 cm (6.4 14  
 (18%) , cm)  
 . 2  
 7 7  
 11  
 8 epithelial type , 3 mixed epithelial and  
 mesenchymal type , 8 epithelial type 가  
 fetal pattern 4 (50%), combined fetal and embryonal pattern

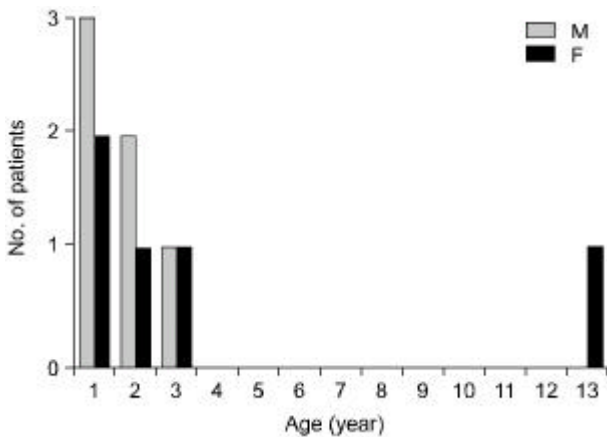


Fig. 1. Age and sex

3 (37%), macrotrabec ular pattern 1 (12%) .  
 -fetoprotein (> 10 ng/ml) 10  
 78,918 ng/ml (970 350,300 ng/ml) , GOT/GPT  
 (>40/40 U/L) 7 , (Hb < 10 g/dL)  
 가 6 , (Platelet > 600,000/  $\mu$ l) 6 ,  
 (Cholesterol > 240 mg/dL) 4 ,  
 (Total bilirubin > 1.2 mg/dL) 4 (Table  
 1). 11 9 가 가  
 (neoadjuvant chemotherapy)  
 1 가 가  
 1  
 가 9% . 가 1  
 CCG-  
 823F protocol (cisplatin, adriamycin) CCG-8881A protocol  
 (cisplatin, vincristine, 5-FU) 4  
 8 가 53%  
 (37 67%) (Fig.  
 3), 1 8

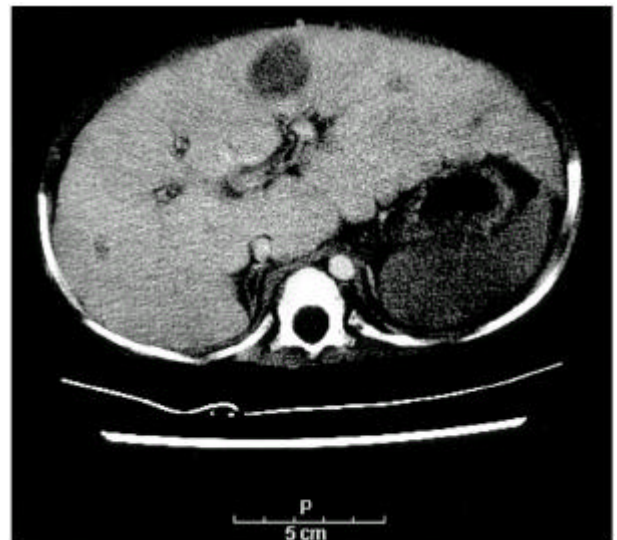
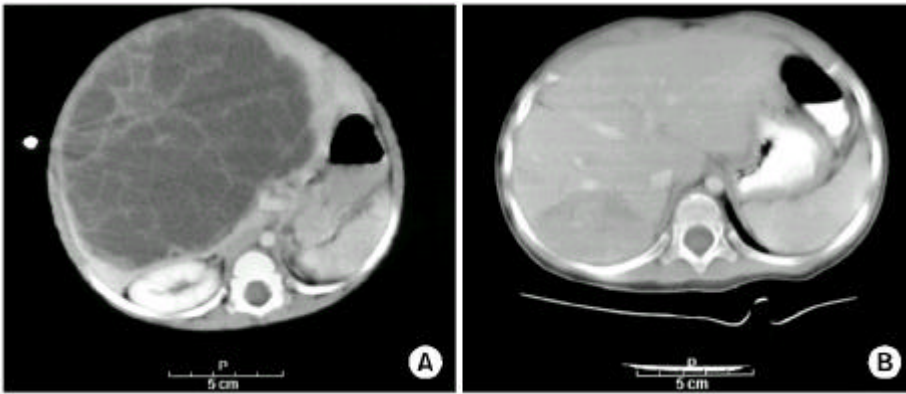


Fig. 2. One patient received liver transplantation because of multiple unresectable tumor and liver cirrhosis.

Table 1. Laboratory test

-fetoprotein increase (> 10 ng/ml)	10
GOT/GPT increase (> 40/40 U/L)	7
Anemia (Hb < 10.0 g/dL)	6
Thrombocytosis (platelet > 600,000/ $\mu$ l)	6
Hypercholesterolemia (cholesterol > 240 mg/dL)	4
Hyperbilirubinemia (total bilirubin > 1.2 mg/dL)	4



**Fig. 3.** (A) shows unresectable hepatoblastoma of computed tomography at diagnosis. (B) shows resectable hepatoblastoma after neoadjuvant chemotherapy.

가 가 (trisomy) .(3)  
 3 가 , Tonk VS (4) 2 17  
 가 88% , Rainier S (5) Beckwith-Wiedemann  
 1 , 4 , IGF-2 (insulin-  
 1 , 3 . like growth factor-2)  
 2 1 가 (7) (hemihypertrophy) Beck-  
 (single nodule) 가 가 with-Wiedemann 11  
 , 가  
 , , ,  
 , , , .(2,6,8)  
 , , , .(8,9)  
 , 1 70 90%가 -fetoprotein  
 가 가 , (2, 10) (11) , , -  
 (adjuvant chemo- therapy) 가 fetoprotein 가 , ,  
 , , , , ,  
 1 9 .(12)  
 . (median follow-up duration) , , ,  
 21 (5 88 ) , 1 , , ,  
 가 9 .  
 2 . , , , ,  
 1 9 .(6)  
 (disease-free state) . 3 30%  
 .(13) 50% 10 cm  
 .(14) 가 가 가 40%  
 가 가 , 10%  
 .(3)  
 가 가 .(15) 1970  
 , , 20% 30% vincristine,  
 .(15, 16) actinomycin D, cyclophosphamide , ,  
 20 , , ,



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