

Combined Transcatheter Arterial Chemoembolization and Local Radiotherapy for Unresectable Hepatocellular Carcinoma

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Purpose : The best prognosis for hepatocellular carcinoma can be achieved with surgical resection. However, the number of resected cases is limited due to the advanced lesion or associated liver disease. A trial of combined transcatheter arterial chemoembolization(TACE) and local radiotherapy(RT) for unresectable hepatocellular carcinoma(HCC) was prospectively conducted and its efficacy and toxicity were investigated.

Materials and Methods : From 1992 to 1994, 30 patients with unresectable HCC due either to advanced lesion or to associated cirrhosis were entered in the study. Exclusion criteria included the presence of extrahepatic metastasis, liver cirrhosis of Child' s class C, tumors occupying more than two-thirds of the whole liver, and an ECOG scale of more than 3. Patient characteristics were : mean tumor size $8.95 \pm 3.4\text{cm}$, serum AFP+ in all patients, portal vein thrombosis in 11 patients, liver cirrhosis in 22 patients, and UICC stage III and IVA in 10 and 20 patients, respectively. TACE was performed with the mixture of Lipiodol(5ml) and Adriamycin(50mg) and Gelfoam embolization. RT(mean dose $44.0 \pm 9.3\text{Gy}$) was followed within 7- 10 days with conventional fractionation.

Results : An objective response was observed in 19 patients(63.3%). Survival rates at 1, 2, and 3 years were 67%, 33.3% and 22.2%, respectively. Median survival was 17 months. There were 6 patients surviving more than 3 years. Distant metastasis occurred in 10 patients, with 8 in the lung only and 2 in both lung and bone. Toxicity included transient elevation of liver function test in all patients, fever in 20, thrombocytopenia in 4, and nausea and vomiting in 1. There was no treatment-related death.

Conclusion : Combined TACE and RT appear to produce a favorable response and survival results with minimal toxicity.

Key Words :Hepatocellular carcinoma, Transcatheter arterial chemoembolization, Radiotherapy

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Table 4. Toxicity of Combined TACE and Radiotherapy(N=30)

Type of toxicity	No. of Patients(%)
Transient elevation in LFT*	30(100)
Fever	20(66.7)
Thrombocytopenia †	4(13.2)
Nausea/vomiting	1(3.3)

*liver function test, †less than 50,000/mm³

30.6 Gy
 59.4 Gy
 44.0±9.3 Gy
 4-6

Table 2. CT Response of Unresectable HCC to Combined TACE and Radiotherapy (N=30)

Tumor response*	No. of Patients(%)
Complete response	0(0.0)
Partial response	19(63.3)
Stable disease	9(30.0)
Progressive disease	2(6.7)

*evaluated 4-6 weeks after treatment using CT scan; complete disappearance of the tumor as a complete response, decrease of more than 50% of the tumor size as a partial response, decrease of less than 50% of the tumor or no change as a stable disease, and progression as a progressive disease

50% (stable disease)
 (progressive disease)
 Kaplan-Meier
 4-6
 30 19
 63.3% (Table 2). 1, 2,

3 67, 33.3, 22.2% (Fig. 1), 19

Table 3 6) 50, 35 (3

Adriamycin 5-Fu
 가 Table 3 6 3

10 (33.3%) 가
 4.5 10 3-17 가
 2 가

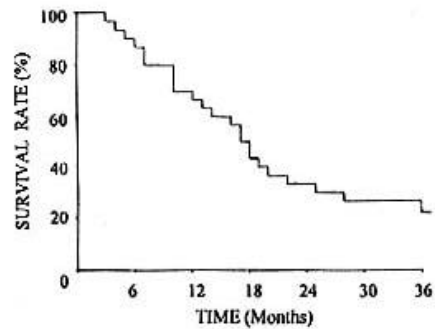


Fig. 1. Overall survival of 30 unresectable HCC patients who were treated with combined TACE and local radiotherapy.

Table 4

TACE
 aspartate aminotransferase alanine
 aminotransferase 2/3
 가 1
 가 4, 1 1-2
 3
 2 1-3
 1 6 alkaline

phosphatase

³²⁾

가

³³⁾

UICC , A 2/3
8.95±

TACE

3.4 cm

가 1, 2, 3

67, 33.3, 22.2%

¹¹⁻¹³⁾

가

가

가

17

가

TACE

^{11-13, 28, 29)} TACE

¹¹⁻¹³⁾

가

가

가

가

(Table

^{14, 15)}

3

4).

가

가

가

가 3 cm

44%

³¹⁾

가

가

Tang ³⁴⁾

가

TACE가

가

가

가

35

Gy

^{16, 17)}

4

(5-fluorouracil, cyclophosphamide, methotrexate, vincristine) ¹⁸⁾

가 1-2

5-fluorouracil methotrexate ¹⁹⁾, cisplatin ²⁰⁾

26-36%

^{16, 17)}

1

^{21, 22)}

Stillwagon

2 , alkaline phosphatase

Adriamycin, 5-fluorouracil 15-24 Gy

1

46%

가

3

가

가

가

가

^{25, 35)}

50-60 Gy

가

2

1

1.5 Gy

²²⁻²⁵⁾

33%

66-72.6 Gy,

33-66% Gy

48-52.8 Gy, 66%

(

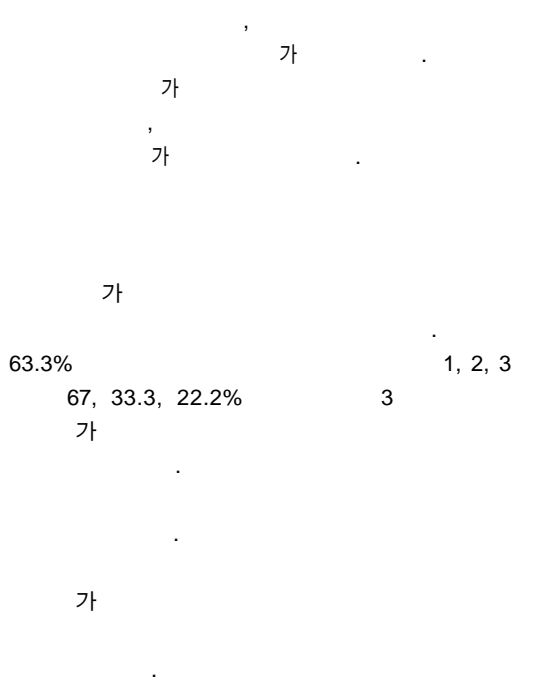
)

24-36

Adriamycin

44.0± 9.3 Gy

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: 1992 3 1994 8

가 30

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가

가 Child's C

2/3

ECOG 3

8.95 ± 3.4

cm, UICC

A가

10 , 20 ,

22 ,

11 ,

alpha fetoprotein(AFP)

TACE

5 ml

(Adriamycin 50mg)

(Gelfoam)

TACE 7-10

44.0 ± 9.3 Gy

: 30 19

63.3%

1, 2, 3

67, 33.3, 22.2%

17

19

6 3

가 4 , 1

1-2

: 가