

Abstract

Concurrent Chemo-Radiation Therapy for Advanced Hepatocellular Carcinoma with Portal Vein Thrombosis

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Background/Aims: Advanced hepatocellular carcinoma with portal vein thrombosis has a poor prognosis. This study was undertaken to evaluate the therapeutic effects of concurrent chemo-radiation therapy in advanced hepatocellular carcinoma with portal vein thrombosis. Methods: A total of 54 patients with advanced hepatocellular carcinoma (TNM stage IVa) were enrolled. Nineteen patients were treated with external beam radiotherapy (4,500 cGy/ 5 weeks) and intrahepatic arterial 5-FU infusion (500 mg on 1-5 day and 30-35 day, respectively) via implanted chemoport. The others were treated with intrahepatic arterial cisplatin infusion (80 mg/m²). Results: In patients treated with concurrent chemo-radiation therapy, response rates at 2nd and 6th months were 42.1% and 26.3%, respectively. In patients treated with intrahepatic arterial cisplatin therapy, response rates at 2nd and 6th months were 2.9% and 0%, respectively. The median survival time was 11.6 months in concurrent chemo-radiation therapy and 4.8 months in intrahepatic arterial cisplatin infusion therapy. Concurrent chemo-radiation therapy produced better response rates and longer survival time than those of intrahepatic arterial cisplatin infusion therapy (p<0.05). Conclusions: Concurrent chemo-radiation therapy achieved favorable results in advanced hepatocellular carcinoma with portal vein thrombosis and can be considered as a treatment option for the management of advanced hepatocellular carcinoma. (Korean J Hepatol 2002;8:71-79)

Key Words: Neoplasm/Liver/Hepatocellular carcinoma, Portal vein thrombosis, Chemo-radiation therapy, Cisplatin

◇ 2001 11 14 ; 2002 1 22 ; 2002 1 22
◇ Abbreviation: -FP, alpha-fetoprotein; ECOG, Eastern Cooperative Oncology Group; 5-FU, 5-fluorouracil; HBsAg, hepatitis B surface antigen; PIPS, percutaneously implantable port system; WHO, World Health Organization
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TNM stage IVa
 - 19
 , 가 ! cisplatin 35
 가
 20%
 2,3
 (multifocality) cisplatin (1)
 가 , TNM stage IVa , (2) 70
 , (3) Eastern
 Cooperative Oncology Group (ECOG) 0
 1, (4) Child-Pugh A, (5)
 2-4
 5
 6 가 -
 , 가
 2.
 1) chemoport
 6
 7-9 , 5.8 French
 (three-dimensional treatment)
 ,
 , chemoport
 가 , 가
 10-13 (concurrent chemoport
 chemo-radiation therapy) 가
 14-19
 -
 2) - cispla-
 가 , tin -
 cisplatin 가 , 4,500 cGy
 - 가 . 5
 5 5-FU 500 mg
 chemoport . -
 1 1
 1. 가
 1996 1 2000 4 5-FU 500 mg cisplatin 20 mg 3

chemoport , -FP 가
 cisplatin , 25% 가 ,
 cisplatin 1
 cisplatin 80 mg/m²
 4)
 3) Chi-square test, Fisher's exact test
 independent sample t-test
 가 가 Fisher's exact test
 2 가 - 가 Kaplan-Meier
 1 cisplatin 2 . p 0.05
 6 . 가 가 Window SPSS release 10.0
 (burden) 가
 . World Health Organization (WHO)
 criteria 1.
 , 가 54 -
 50% 19
 cisplatin 35
 가 25% .
 가 - B
 (HBsAg)
 가 -FP - cisplatin
 가 400 ng/mL ,
 가 가
 50% 가 ,
 , 25% 50% (p<0.05) (1).

Table 1. Characteristics of the Patients

	CCRT	IADDP	P- value
Number of patients	19	35	-
Mean age (years)	48.3	53.1	NS
Sex (M/F)	16/3	30/5	NS
HBsAg positive	19	26	0.002*
Distribution of HCC (unilobe/bilobe)	13/6	12/23	0.023*
Involvement of main portal vein	4	19	0.023*
Mean maximal diameter of HCC (cm)	12.3	9.4	0.003*

*, P<0.05. CCRT, concurrent chemo-radiation therapy; HBsAg, hepatitis B surface antigen; HCC, hepatocellular carcinoma; IADDP, intrahepatic arterial cisplatin infusion therapy.

Table 2. The Response to Therapy after 2 Months

	CCRT		IADDP		P - value
	N	%	N	%	
Response positive					
Complete remission	1	5.3	0	0	
Partial response	7	36.8	1	12.9	
Response negative					
Stable disease	3	15.8	4	11.4	
Progressive disease	5	26.3	22	62.8	
Death	3	15.8	8	22.9	
Total	19		35		0.001*

*, P<0.05. CCRT, concurrent chemo-radiation therapy; IADDP, intrahepatic arterial cisplatin infusion therapy.

Table 3. The Response of Serum Alpha-Fetoprotein to Therapy*

	2 Months		6 Months	
	CCRT	IADDP	CCRT	IADDP
	N=18	N=21	N=12	N=2
Response positive				
Complete response	1	0	1	0
Partial response	10	3	4	0
Minimal response	4	0	1	0
	15(83.3%)	3(14.3%)	6(50.0%)	0(0.0%)
Response negative				
Stable response	2	10	3	1
Progressive response	1	8	3	1
	3(16.4%)	18(85.7%)	6(50.0%)	2(100%)
P - value	0.000†		0.473	

*, The patients with hepatocellular carcinoma that had markedly elevated serum alpha-fetoprotein levels (> 400 ng/mL) were evaluated. †, P<0.05. CCRT, concurrent chemo-radiation therapy; IADDP, intrahepatic arterial cisplatin infusion therapy.

2.

-

2

3

19

2

-

1 (5.3%),

7

8 42.1%

(36.8%) 3 (15.8%)

5 (26.3%)

cisplatin

1 2.9%

(p<0.05) (2).

, -FP 가

cisplatin

400 ng/mL

, -

2

8

35

cisplatin

-FP 가

(3).

1 (2.9%) . 4

-

(11.4%) 가 -FP

22 (62.8%)

-FP

90.5%

Table 4. The Response to Therapy after 6 Months

	CCRT		IADDP		P - value
	N	%	N	%	
Response positive					
Complete remission	2	10.5	0	0	
Partial response	3	15.8	0	0	
Response negative					
Stable disease	1	5.3	2	5.7	
Progressive disease	7	36.8	7	20.0	
Death	6	31.6	26	74.3	
Total	19		35		0.004*

*, P<0.05. CCRT, concurrent chemo-radiation therapy; IADDP, intrahepatic arterial cisplatin infusion therapy.

6
 6 (10.5%), 19 (15.8%), 3 (15.8%), 7 (36.8%), 6, 26, 35, 2 (5.7%), 7 (20.0%), 6, 5, 26.3%, cisplatin, 가, (p<0.05) (4), -FP, 가, 400 ng/mL, cisplatin, -FP, 가, (3), -FP, 93.5%, 3, 19, 11.6 (2.5-31.0), cisplatin, 2, 16 (84.2%), tin, 가, 6, 13 (68.4%), 4.8 (1.0-20.4), 가, 6, (p<0.05) (1).

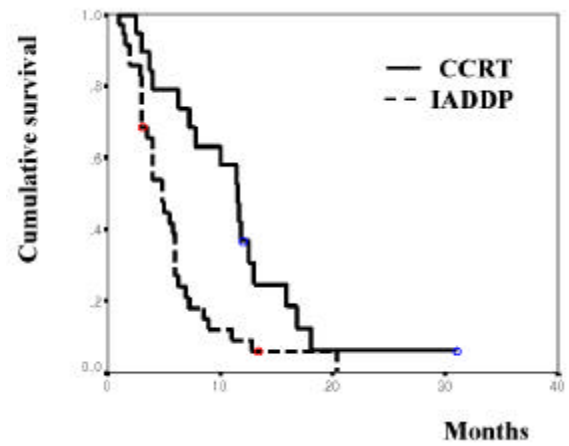


Figure 1. Survival curves of the concurrent chemo-radiation therapy and intrahepatic arterial cisplatin infusion therapy.

4. cisplatin .
 19
 6 6 가 . 20-50% cisplatin
 1 가 5-15
 1 가 ,²⁰⁻²³
 PIPS (per-
 cutaneously implantable port system)
 cisplatin 5-FU
 가 .⁸
 cisplatin
 2 6 2.9% 0%
 4.8
 1-3
 , , , ,
^{24,25}
 , ,
 -
 chemoport 가 (5).
 chemoport 가

Table 5. Toxicities and Side Effects of Concurrent Chemo-radiation Therapy

	No. of patients (N=19)
Nausea and vomiting	11
Leukopenia	6
Thrombocytopenia	3
Elevation of ALT (more than 2 times)	14
Radiation induced	
Gastroduodenal ulcer	4
Gastroduodenitis	8
Chemoport	
Infection	2
Occlusion	1

ALT, alanine aminotransferase.

가 가 ,

2 6
 42.1% 26.3% 11.6
 , cisplatin
 2 6 2.9%
 4.8 .
 cisplatin
 가 .
 -
 가 5-FU
 cisplatin
 cisplatin gemcitabine
 가
 , 6 -
 가
 가

stage IVa

가 가

가

가

26,27

Takizawa¹⁶ epirubicin
 - 가 가
 47% 11.6
 (4-27.1)
 50%

가 : -

가 , cisplatin
 가
 : 1996 1 2000 4

, Abrams¹⁸ 가 가
 cisplatin
 TNM stage IVa , 70
 , ECOG 0 1, Child-Pugh A,
 1 cisplatin 가
 19 cisplatin 35
 , 16%, 가
 cisplatin chemoport
 43% 4,500 cGy 5 5
 7.6 5 5-FU 500 mg

Okuda
 chemoport . 1
 staging,²⁸ Stillwagon staging²⁹ -FP 1 가
 , cisplatin 1
 cisplatin 80-100 mg/m²

가 . , - 가 . :
 , chemoport 2 -
 8 (42.1%) cisplatin
 1 (2.9%)
 1¹⁴ 1 (p<0.05), 6
 - 5
 (26.3%) cisplatin
 가
 (p<0.05).

11.6
 cisplatin 4.8
 ($p < 0.05$). , -
 2 cisplatin
 1 :

가 가
 : / / , ,
 - , Cisplatin

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