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The Analyses of Treatment Results and Prognostic Factors in Supradiaphragmatic CS I-II Hodgkin's Disease

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Purpose : The aim of this retrospective study is to assess the necessity of staging laparotomy in the management of supradiaphragmatic CS - Hodgkin's disease. Prognostic factors and the usefulness of prognostic factor groups were also analyzed.

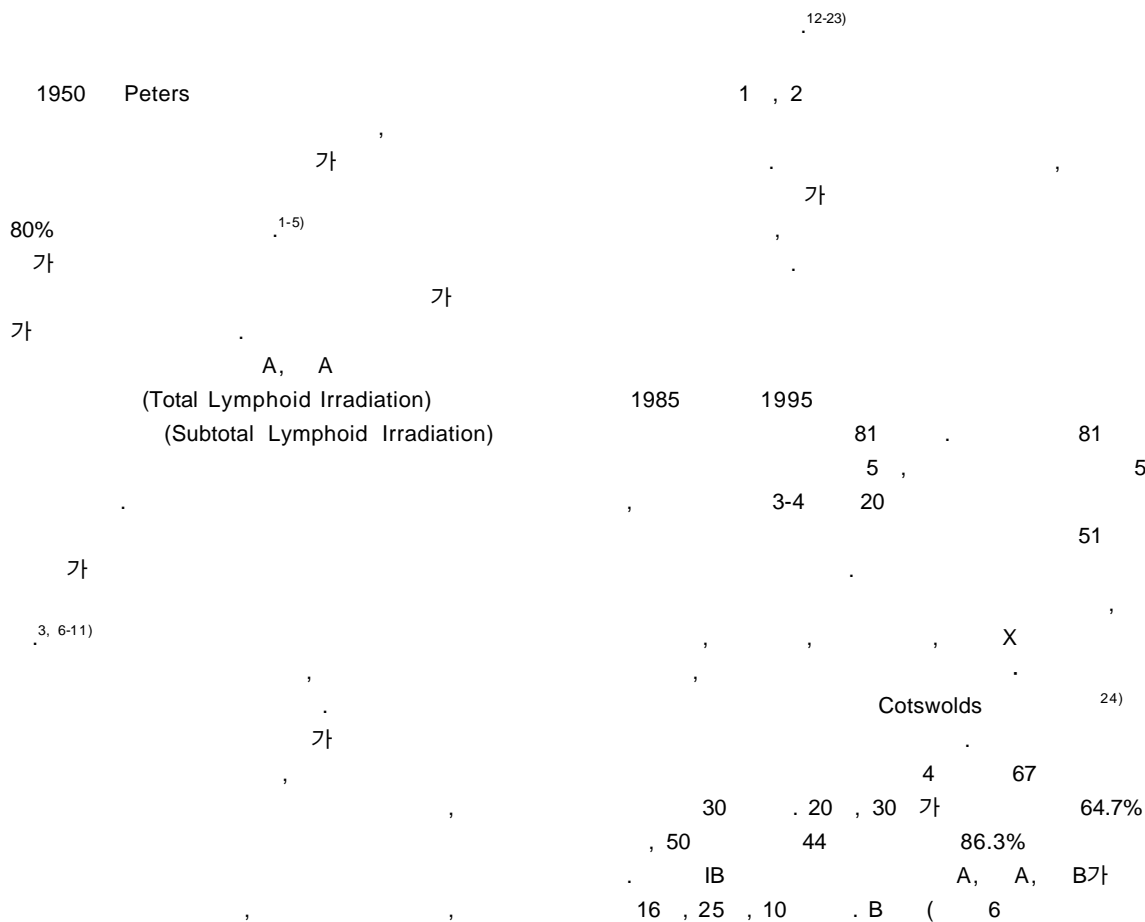
Materials and Methods : From 1985 to 1995, fifty one patients who were diagnosed as supradiaphragmatic CS - Hodgkin's disease at Yonsei Cancer Center in Seoul, Korea were enrolled in this study. Age range was 4 to 67 with median age of 30. The number of patients with each CS A, A, and B were 16, 25, and 10, respectively. Radiotherapy(RT) was delivered using 4 or 6 MV photon beam to a total dose of 19.5 to 55.6Gy (median dose : 45Gy) with a 1.5 to 1.8Gy per fraction. Chemotherapy(CT) was given in 2-12 cycles(median : 6 cycles). Thirty one patients were treated with RT alone, 4 patients with CT alone and 16 patients with combined chemoradiotherapy. RT volumes varied from involved fields(3), subtotal nodal fields(18) or mantle fields(26).

Results : Five-year disease-free survival rate(DFS) was 78.0% and overall survival rate(OS) was 87.6%. Fifty patients achieved a complete remission after initial treatment and 8 patients were relapsed. Salvage therapy was given to 7 patients, 1 with RT alone, 4 with CT alone, 2 with RT + CT. Only two patients were successfully salvaged. Feminine gender and large mediastinal adenopathy were significant adverse prognostic factors in the univariate analysis for DFS. The significant adverse prognostic factors of OS were B symptom and clinical stage. When patients were analyzed according to European Organization for Research and Treatment of Cancer (EORTC) prog

nostic factor groups, the DFS in patients with very favorable, favorable and unfavorable group was 100, 100 and 55.8% ($p < 0.05$), and the OS in each patients' group was 100, 100 and 75.1% ($p < 0.05$), respectively. In very favorable and favorable groups, the DFS and OS were all 100% by RT alone, but in unfavorable group, RT with CT had a lesser relapse rate than RT alone. The subtotal nodal irradiation had better DFS than mantle RT in patients treated with RT.

Conclusion : In present study, the DFS and OS in patients who did not undergo staging laparotomy were similar with the results in the literatures of which patients were surgically staged. Therefore, we may suggest that staging laparotomy would not influence the outcome of treatments. In univariate analysis, gender, large mediastinal adenopathy, B symptoms and clinical stage were significant prognostic factors for the survival rate. We confirm the usefulness of EORTC prognostic factor groups which may be a good indicator to select the treatment modality.

Key Words : Staging laparotomy, Hodgkin's disease, Radiotherapy



10%
 38
) 10
 lymphocyte depletion(LD)
 가 13 , X
 가 가 가 3 1
 (M/T ratio 0.35)
 가 가 4 (Table 1).
 involved field ()
 ; IFRT), ()
 가 4MV 6MV
 19.5Gy 55.6Gy (: 45 Gy)

MOPP(mechlorethamine, vincristine, procarbazine, prednisone) ABVD(doxorubicin, bleomycin,

Table 1. Patients Characteristics in CS-II Supradiaphragmatic Hodgkin's Disease

Age (years)	median : 30	
	0-19	: 7(13.7%)
	20-29	: 18(35.3%)
	30-39	: 15(29.4%)
	40-49	: 4(7.8%)
	50-59	: 3(5.9%)
	60-69	: 4(7.8%)
Gender	male	: 28(54.9%)
	female	: 23(45.1%)
Pathology	Lymphocyte predominance	: 13(25.5%)
	Nodular sclerosis	: 18(35.3%)
	Mixed cellularity	: 17(33.3%)
	Lymphocyte depletion	: 3 (5.9%)
Clinical Stage	A	: 16(31.4%)
	A	: 25(49.0%)
	B	: 10(19.6%)
B symptoms	Yes	: 10(19.6%)
	No	: 41(80.4%)
Number of involved site	<4 sites	: 38(74.5%)
	4 sites	: 13(25.5%)
Large mediastinal adenopathy	Yes	: 4(7.8%)
	No	: 47(92.2%)

vinblastine, dacarbazine)
 2-12 (: 6) A
 14 2
 A
 4 16 , 6 , 3
 B 8 가
 1 가
 50% B 가 가
 2 3 , 3 4
 , 4-5 6
 가

2-131 (: 56) , 51 41 (80.3%)가 3

European Organization for Research and Treatment of Cancer(EORTC) Lymphoma Cooperative Group²¹⁾(very favorable (VF) : 1
 40 B
 가 ESR 50mm lymphocyte predominance nodular sclerosis ; unfavorable (U) : 50
 B ESR 50mm
 B ESR 30mm
 4 가
 ; favorable (F) : VF
 U)

Kaplan-Meier method
 log-rank test

1. 51 50 가 (5 87.6 %, 78.0% : 98%). 1 B (Fig. 1). 6 55.5Gy B , 가 4 , 2. 가 4 B 가 8 가 (Table 2). 가 가 가 가 8 6 (75%)가 3 가 4 , 가 3 , 가 1 . 5 가 3 가 1 7 . 8 가 1 , 4 , 2 가 2 가 28.6% . 1 8

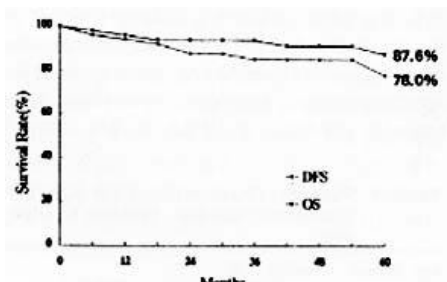


Fig. 1. Five-year diseasefree survival rate(DFS) and overall survival rate(OS) in supradiaphragmatic CS - Hodgkin's disease.

Table 2. Characteristics of Patients Relapsed after Treatment in CS - Supradiaphragmatic Hodgkin's Disease

Age/ Sex	Stage	Histology	Chemotherapy (cycles)	RT field	RT dose (Gy)	Relapse site	Relapse duration (months)	Salvage Treatment	Follow up (months)	Status
30/F	A	NS	-	Mantle	21.6	lung	15	CT+RT	37	NED
18/F	A	NS	-	STNI	48	right SCL	20	RT	53	NED
30/F	A	MC	-	Mantle	45	liver, spleen	55	CT	64	AWD
58/F	A	LP	-	Mantle	39	PALN, left femoral	12	CT	17	DOD
34/F	A	NS	12	Mantle	50	left axilla	33	RT+CT	120	DOD
24/F	A	LP	12	-	-	lung	21	CT	37	DOD
60/F	B	LP	-	Mantle	38.8	left inguinal	3	-	5	DOD
30/F	B	MC	6	Mantle	38	mediastinum, liver	60	CT	82	DOD

LP : lymphocyte predominance, NS : nodular sclerosis, MC : mixed cellularity, CT : chemotherapy, RT : radiotherapy, Mantle : mantle field irradiation, STNI : subtotal nodal irradiation, SCL : supraclavicular lymph node, PALN : paraaortic lymph node, AWD : alive with disease, DOD : died of disease, NED : no evidence of disease

Table 3. Univariate Analysis of Prognostic Factors in 5 year Disease-Free Survival Rate and Overall Survival Rate

Variables	5 year DFS(%)	Statistical Significance*	5 year OS(%)	Statistical Significance
Age(years)				
< 50	79.6	NS	90.5	NS
50	71.4		68.6	
Gender				
male	95.7	$p < 0.05$	88.7	NS
female	53.0		86.4	
Pathology				
LP	75.0	NS	75.0	NS
NS	74.7		94.4	
MC	80.8		90.9	
LD	100.0		100.0	
Clinical stage				
A	93.3	NS	100.0	$p < 0.05$
A	74.7		89.1	
B	53.3		80.0	
B symptoms				
Yes	53.3	NS	80.0	$p < 0.05$
No	82.2		89.6	
Number of involved site				
< 4 sites	86.2	NS	91.7	NS
4 sites	55.1		77.9	
Large mediastinal adenopathy				
Yes	25.0	$p < 0.05$	75.0	NS
No	84.7		86.8	

* : log-rank test, NS : not significant
 DFS : disease free survival rate OS : overall survival rate

가
 (Table 3).

Table 4. Relapse Rate by Clinical Stage and Treatment Modalities in CS I-II Supradiaphragmatic Hodgkin's Disease

Stage	Treatment modality			Total
	RT alone	CT+RT	CT alone	
Stage A	1/14	0/2	0/0	1/16
Stage A	3/16	1/6	1/3	5/25
Stage B	1/1	1/7	0/1	2/9
Total	5/31	2/15	1/4	8/50

RT : radiotherapy
 CT : chemotherapy
 * : excluded one patient who responded partial remission after initial treatment

4.

A
 1 가 , A
 3 ,
 1

B
 1 가
 8
 7 1 가

가
 (Table 4).

2 (3.9%), F 23 (45.1%), U 26
 (51.0%) . VF

F

5. EORTC

EORTC

VF

8

U

Table 5. Results According to EORTC Classification System in CS I-II Supradiaphragmatic Hodgkin's Disease

Treatment modality	Number of Patients	Disease-free survival rate (%)	Relapse rate(%)	Salvage rate (%)
<i>Very favorable group</i>	2	2(100)		
RT alone	2	2(100)		
<i>Favorable group</i>	23	23(100)		
RT alone	17	17(100)		
CT+RT	5	5(100)		
CT alone	1	1(100)		
<i>Unfavorable group</i>	26	17(65.4)	8(30.8)	2/7(28.6) _*
RT alone	12	7(55.7)	5(41.7)	2/4(50.0) _*
CT+RT	11	8(53.0) [†]	2(18.2)	0/2(0.0)
CT alone	3	2(50.0)	1(33.3)	0/1(0.0)

RT : radiotherapy

CT : chemotherapy

* : excluded one patient who refused salvage treatment

† : included a case of persistent lesion after initial curative chemoradiotherapy

Table 6. Five-year Disease-Free Survival Rate by Radiation Treatment Volume in CS - Supradiaphragmatic Hodgkin's Disease

RT volume	Treatment modality		Total (%)
	RT alone(%)	CT + RT(%)	
Involved field	3/ 3(100)		3/ 3(100)
Mantle field	9/13(76.9)	10/13(53.9)	19/26(64.1)
STNI	14/15(92.9)	3/ 3(100)	17/18(94.1)
Total	26/31(82.0)	13/16(68.2)	39/47(79.2)

RT : radiotherapy, CT : chemotherapy
STNI : subtotal nodal irradiation

(p=0.18).

(p=0.26). IFRT가

3
가 , EORTC
VF 1 F 2
(Table 6).

가

1-2

(Table 5). EORTC 5
VF , F , U 100%, 100%, 55.8%,
5 100%, 100%, 75.1%

B

1-2

6.

7-9, 25-27)

가^{9, 11, 16-22)}
EORTC group
가
가

가

(H6F) , B 가 ESR 50mm 2 30mm 5 sclerosis (NS) , ESR 40mm , F

74.5%, 92.8% 33.3% 39.6%

F

(MOPP ABVD regimen) 3 EORTC Group H5U U (3 MOPP-RT-3

6 78% 83%($p=0.27$), 9 66%
 93% 89%($p=0.24$) 가 83%($p < 0.001$) 73%
 88%($p=0.06$) 가 40 19-21)

1-2 가 5 55.8%
 75.1% H5U

cellularity(MC) ESR 가 3 , B mixed
 LD , 40-50 ,

EORTC H7 VF 40 가
 1-2 9 가 254 F 130
 124

EBVP (epirubicin, bleomycin, vinblastine, prednisone) 6 IFRT 36Gy
 6 (19% 10%;
 $p=0.019$), 가
 6 96% 98%
 가 ($p=0.15$). U EBVD MOPP/ABV
 6 36Gy

Gospodarowicz 1-2 MOPP/ABV 가
 5 68.8%, (21% 7%; $p < 0.001$) 6
 85.1% 82% 89% 가
 ($p=0.09$)^{22, 31}. VF

75.3% 10 65.8% F

77.6, 78.2% 가
 B 50 1-2

lymphocyte predominance(LP) nodular VF F

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