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## Long-term Follow-up after Radiation Therapy Alone for Esophageal Carcinoma

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<u>Purpose</u>: The incidence of esophageal carcinoma is increasing. Radical surgery is the treatment of choice, but large proportion of the esophageal canser patients are with unresectable disease at the time of initial diagnosis, so radiation therapy has been the major treatment modality. We carried out retrospective analysis to see the outcome and prognostic factors of radiation therapy alone for esophageal carcinoma

Materials and Methods: From June of 1979 through December 1992, 289 patients with esophageal carcinoma were treated with radiation therapy alone at Department of Therapeutic Radiology, Seoul National University Hospital. Of these patients, 84 patients were excluded as they were ineligible for the current analyses. Twenty-two patients had distant metastasis other than supraclavicular lymph node metastasis, 52 patients received less than 45 Gy, and 10 patient were lost from follow-up. Therefore 205 patients constituted the base population of this study. According to AJCC staging system, there were 2 patients with of this study I, 104 with stage IIA, 26 with stage IIB, 48 with stage III, and 25with stage IV, Radiation dose ranged from 4500 cGy to 6980 cGy with median dose of 5940 cGy. Follow-up period of the alive patients ranged from 77 to 180 months.

Results: The Median survival period of all the patients was 11 months and the 2-, 5-, and 10-year overall survival rates were 22.4%, 10.2% and 5.3%, respectively. Most of the failures were local recurrences. Of 169 failures, 134 had local failure as a component and 111 had local recurrence only. The Lymph node was most common distant metastatic site and the next was the lung. The stage, T-stage, N-stage, functional status, tumor size, and aim of treatment were statistically significant prognostic factors for survival by univariate analyses. But only tumor size and N-stage were significant by multivariate analyses.

Conclusion: We could get 10.2% of 5 year survival rate and 5.3% of 10 year

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					가	AJCC	
				.1)	205 가	74 가	
		5	10%		,	131	
	. 2,3)						
	_, _,					24 82	
	가 가				60		
		•				가 ECOG 1(123	,
	,		71		60.0%)	.(Table 1). 가	
			가			191 . 13	
,					, 19		28
					, 19	, 123	20
					120 5	5cm 83 5cm 10cm	
					2	10cm . AJCC	
					TNM	I 2 , IIA 104 , IIB	
					26 , III 4	8 , IV 25 .(Table 2)	
						5cm	
1979	6 1992	12					
	0.4		289		4500.0	3600cGy	
•	84	<b>5</b> 0			4500cGy		
4500cGv		. 52 10				, 3	
4500cGy 가	22	10	가		,	, 3 4500cGy	
<b>71</b>		가	<b>~1</b>	•	6980сGy		
	M. 190.	IC. ENTNTN				30400dy	i.

Characteristic	Number(%) Char	acteristic	Nu	mber(%)
Age		Functional status	10	Vol
24 - 30	1( 0.5)	ECOC	3 0	0
31 - 40	2( 1.0)		1	123(60.0)
41 - 50	23(11.2)		2	72(35.1)
51 - 60	85(41.5)		3	10( 4.9)
61 - 70	73(35.6)		4	0
71 - 82	21(10.2)	Location		
		cervic	al	13( 6.3)
Sex		upper	-thoracic	39(19.0)
female	14( 6.8)		horacic	125(61.0)
male	191(93.2)	low-th	noracic	28(13.7)
		Size of lesion		
Histology		< 5 0	cm	120(58.5)
squamous cell ca	191(93.2)	5 - 1		83(40.5)
adenocarcinoma	14( 6.8)	> 10		2( 1.0)

Table 2. Distribution of Stage according to AJCC TNM Staging

Stage	Number(%)	T-stage	Number(%)	N-stage	Number(%)
	2( 1.0)	1	3( 1.5)	0	
IIA	104(50.7)	2	87(42.4)	1	130(63.4)
IIB	26(12.7)	3	87(42.4)		75(36.6)
111	48(23.4)	4	28(13.7)		10,00.0
IV	25(12.2)				

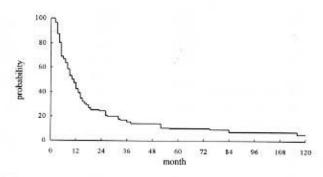


Fig. 1. Overall survival rate of esophageal cancer treated with radiation therapy alone.

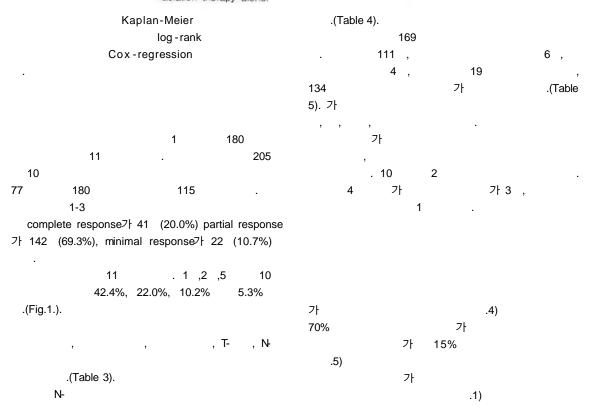


Table 3. Prognostic Factors Affecting Survival on Univariate Analysis

Prognostic	factor	Median survival	2-year survival	5-year survival	10-year survival	p-value
Age			CONTROL OF	2/20/00/95	V-9/27/7)	
	≤ 60	10	25.2%	13.5%	6.1%	n.s.
	> 60	11	19.2%	6.4%	4.3%	
Sex	, 00	28.91	38467	175 0 175 1	ACTA SOLIS	
JOA	female	9	7.1%	7.1%	0	n.s.
	male	11	23.0%	10.5%	5.3%	
Stage	male	3.1	20.070	10.079	5.675	
Stage	V.	18	50.0%	50.0%	0	0.0268
	11.4	13	26.9%	12.5%	8.1%	0.020
	IIA		23.1%	7.7%	7.7%	
	IIB	10			4.2%	
	111	9 7	16.7%	8.3%		
	IV	7	12.0%	4.0%	4.0%	
Performano	ce status					
	ECOG 1	13	26.0%	12.2%	6.7%	0.013
	2	7	15.3%	6.9%	4.2%	
	3	10	20.0%	0	0	
Size of les	sion					
	< 5 cm	13	30.0%	13.3%	6.7%	0.009
	5 - 10 cm	7	12.1%	6.0%	3.6%	
	> 10 cm	7 7	0	0	0	
Location	2 10 0111		(15)	(5	70	
Location	cervical	5	15.4%	15.4%	7.7%	n.s.
		11	22.4%	15.4%	10.3%	1000
	upper 1/3		22.4%	8.8%	4.2%	
	mid 1/3	11			3.6%	
	lower 1/3	12	21,4%	7.1%	3.0%	
T-stage			00.704	00.00/	0	0.001
	1	38	66.7%	33.3%	0	0.0012
	2 3 4	14	29.9%	13.8%	11.1%	
	3	9	12.6%	4.6%	1.2%	
	4	9	21.4%	14.3%	0	
N-stage						
	0	12	26.2%	13.9%	5.5%	
	1	8	14.7%	4.0%	2.7%	
Aim of tre	atment			gta-rayor wi		
run 01 110	curative	13	27.5%	12.2%	5.2%	0.002
	palliative	7	13.5%	6.8%	2.7%	

Table 4. Prognostic Factors Affecting Survival on Multivariate Analysis

Prognostic factor	Relative risk	p~value
Age	1.203	n.s.
Sex	1.481	n.s.
Stage	1.073	n.s.
Performance status	1.184	n.s.
Size	1.542	0.0038
Location	0.897	n.s.
T-stage	1.212	n.s.
N-stage	1.604	0.0284
Aim	1.195	n.s.

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Table 5. Patterns of Recurrence of 205 Patients with Radiation Alone

Recurrence pattern	Number
Local	111
Locoregional	6
Regional	4
Distant metastasis	19
Local & distant metastasis	15
Locoregional & distant metastasis	2
Regional & distant metastasis	12
Total	169
Failure with local component	134
Failure without local component	35
Total	169

가 ,5 10 42.4%,22.0%,10.2% 5.3% 17% 가 Pearson 5 ,6) Beatty 2 21% ,7) 5% 5 10.2% 가 1. DeMeester TR. Surgery and current management for cancer of the esophagus and cardia. Curr Prob . N-Cancer 1988: 12:243-328 2. Boring CC, Squires TS, Tong T. Cancer stati-.8) stics. CA-Cancer J Clin 1993; 43:7-26 3. Collard JM, Ohe JB, Reynaert M, et al. Esophageal resection and bypass: 6-year experience with a low postoperative mortality. World J 1980 가 Surg 1991: 15:635-641 가가 4. Rosenberg JC, Lichter AS, Leichman LP, Squa-Sischy mous cell carcinoma of the thoracic esophagus: An 가 interdisciplinary approach. Curr Probl Cancer 1981: 56:6-12 9) Herskovic 5. Isono K, Ochiai T, Okuyama K, Onoda S. The .10) treatment of lymph node metastasis from eso-가 phageal cancer by extensive lymphadenectomy. Jpn J Surg 1990; 20:151-157 가 가 6. Pearson JG. The present status and future potential of radiotherapy in management of esophageal cancer. Cancer 1977; 39:882-890 7. Beatty JD, DeBoer G, Rider WD. Carcinoma of .11-13) the esophagus: Pretreatmnet assessment, correlation of radiation treatment parameters with survival, and identification and management of radiation treatment failure. Cancer 1979; 43:2254-2267 8. Perez CA, Brady LW. Principles and practice of . Earlam radiation oncology 3rd ed. Philadelphia, PA: Lippin-가 58%, 가 39%, cott Co. 1997:1256-1257 29% .14) Pearson 9. Sischy B, Ryan L, Haller D, et al. Interim report 20% of EST 1282 Phase III protocol for the evaluation 80% of combined modalities in the treatment of patients with carcinoma of the esophagus, stage I & II. 6) Proc Am Soc Clin Oncol 1990; 9:105 10. Herskovic A, Martz K, Al-Sarraf M, et al. 36% 가 Combined chemotherapy and radiotherapy compared with radiotherapy alone in patients with cancer of the esophagus. N Engl J Med 1992; 326: 1593-1598 90%

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가 가 가 : 1979 1992 289 가 12 84 22 , 4500cGy 52 , 가 10 205 77 180 . AJCC 48 ,IV 25 2 , IIA 104 , IIB 26 , III 4500cGy 6980cGy 5940cGy 11 , 2 5 10 22.4% 10.2% 5.3% 169 111 134 , N-, T-10.2% 5 5.3% 10 N-가