

* § . * § . * § . * § . * § . † . § . † . § . † . § . †

_____ : 가 가

_____ : 1995 1 1998 6
가 가 37 가

3 4 45 50.4 Gy
(5-Fluorouracil, 370 450 mg/m², IV bolus, 5 days; Leucovorin 20 mg/m², IV bolus, 5 days)
4 6 37 31
6

가 4 , (Perforation)
1 , 1

가
_____ : 가 94% (29/31) 가 가 ,
6% (2/31), 23% (7/31) 68%
2 , 14 , 8 , 4
, 3 , 3 Grade

III & IV 4 (13%), 2 (6%)
_____ : 가
(68%) (94%)
가

_____ : ,

가 가

(resectability) 가 , Modified Astler- 30% 50% 10
Coller (MAC) B2 1/2
1, 2) 24 55%

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가 , 7 9)
5-Fluorouracil (FU) 5-FU/Leu-
coverin (LV) , 10

8 :

¹²⁾ In vivo In vitro 5-FU (radiosensitization) 가 4 , (perforation) 가 1 ,

가 , 1

가 , 31 가 ,

(cell death) , 39

69 , 55 가 17 ,

가 14 . Table 1

¹⁵⁾ .

¹⁶⁾ (metastatic burden) 2.

가 , (7 cm)

가 4 cm ,

가 2

25 , 5 ,

가 , 1 가

(feasibility)

1997 AJCC , Table 1

가 T3

T3

1. 가 16 , T4

1995 1 1998 6 가 15

가 가

37 가 가

15 cm 가 ,

가

N0, 4 N1, 4 N2

N0 4 , N1

21 , N2 6 (Table 1).

(tethered) (fixed) 3.

(CT, ¹⁹⁾ , 4 6

MRI) T3 . 37 (Fig. 1).

가 가 6 5-FU (5-fluorouracil 370 mg 450 mg/m²)

가 가 LV (Leucovorin 20 mg/m²) IV bolus 5

Table 1. Patient and Tumor Characteristics

Sex	M : F	17 : 14
Age (year)	Median	55
	Range	39 - 69
Tumor size	<4 cm	2
	4 - 8 cm	23
	>8 cm	3
Tumor Mobility*	tethered	5
	fixed	25
	not evaluable	1
Location	upper	3
	mid	15
	lower	13
Preop clinical staging	T3N0M0	2
	T3N1M0	11
	T3N2M0	3
	T4N0M0	2
	T4N1M0	10
	T4N2M0	3
	Stage	4
	Stage	27

* by digital rectal examination

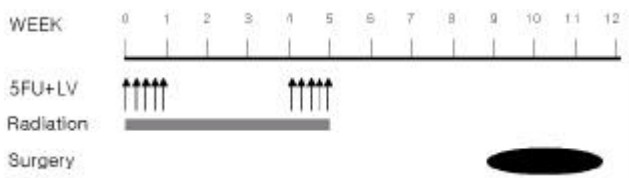


Fig. 1. Treatment schema.

1 cycle
 cycles
 MAC 가 B2
 5-FU (450 mg 500 mg/m², 5 days, IV bolus) LV(30 mg/m², 5 days, IV bolus) 가 10
 (6 MV 10 MV)
 , 3 4
 가
 31 25 45 Gy
 , 6 가

3 50.4 Gy . 1
 1.8 Gy 1 5
 4 6
 가 14 (45%) 가
 8 (26%), 2 (6%),
 4 (13%), 3 (10%)
 2
 4 cm
 , CT MRI 가
 cT3N0M0
 1
 , 가
 가 2
 3
 4.
 T , N , Stage (AJCC)
 T
 (17)
 (early local recurrence
 rate)
 SPSS
 Kaplan-Meier
 5.
 RTOG/EORTC 20)
 가

1. 31
 29 (94%)
 가 2 (6%)
 가 ()
) 5
 (16%) 2
 23%(7/31)
 (down staging rate) (Table 2), T
 T3 16 (52%), T4 15 (48%) 가 T3
 T0 2 (6%), T1 2 (6%), T2
 9 (29%), T3 16 (52%), T4 2 (6%)
 . T4 48%
 6% T3 16
 T0() 1 , T1 1 , T2 6 , T3 8 , T4
 15 T0() 1 , T1 1 , T2
 3 , T3 8 , T4 2 . T
 가 31 21 T
 68% Stage II 4

Stage I 1 , Stage II 3 , Stage
 III 27 2 (6%),
 Stage I 7 (25%), Stage II 11 (35%), Stage III 5 (16%),
 common iliac lymph node 가
 Stage IV 2 (6%)
 68%(21/31)
 가 가 , T3
 가
 N0 가 25 (81%)
 가
 1997 AJCC 12
 가
 31 12
 가 , 24
 2.
 / , , , , ,
 , 7가
 Table 3
 ,
 Grade I/II ,
 Grade III 4 (13%), Grade IV 2 (6%)
 , GM-CSF
 .
 (wound dehiscence) 1
 3. (Early local recurrence rate)
 12
 44 , 17 . 3
 (actuarial local recurrence rate) 18% .

Table 2. Down Staging Rate

a) T & N Classification		
	Preop (%)	Postop (%)
T0	0	2 (6)
T1	0	2 (6)
T2	0	9 (29)
T3	16 (52)	16 (52)
T4	15 (48)	2 (6)
N0	4 (13)	25 (81)
N1	21 (68)	4 (13)
N2	6 (19)	2 (6)
b) Stage Grouping		
	Preop (%)	Postop (%)
CR*	0	2 (6)
Stage	0	8 (26)
Stage	4 (13)	14 (45)
Stage	27 (87)	5 (16)
Stage	0 (0)	2 (6)

Total down staging rate : 21/ 31 (68%)

*complete remission

† Common iliac LN (+) on lymph node dissection

Table 3. Treatment Related Acute Toxicity

	G I/ II (%)	G III (%)	G IV (%)
Nausea/ Vomiting	6 (19)		
Oral mucositis	2 (5)		
Diarrhea	7 (23)		
Anemia	4 (13)		
Leukopenia	5 (16)	4 (13)	2 (6)
Thrombocytopenia	1 (3)		
Skin on perineum	4 (3)		

가

(68%)

(94%)

가

가

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Abstract

Efficacy of a Preoperative Concurrent Chemoradiotherapy for the Locally Advanced Unresectable Rectal Cancer

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Purpose : We conducted a prospective non-randomized clinical study to evaluate the efficacy and toxicity of the preoperative concurrent chemoradiotherapy for locally advanced unresectable rectal cancer.

Materials and Methods : Between January 1995 and June 1998, 37 consecutive patients with locally unresectable advanced rectal cancer were entered into the study. With 3- or 4- fields technique, a total of 45 Gy radiation was delivered on whole pelvis, followed by 5.4 Gy boost to the primary tumor in some cases. Chemotherapy was done at the first and fifth week of radiation with bolus iv. 5-Fluorouracil (FU) 370-450 mg/m², days 1-5, plus Leucovorin 20 mg/m², days 1-5. Of 37 patients, 6 patients did not receive all planned treatment course (refusal in 4, disease progression in 1, metastasis to lung in 1). Surgical resection was undergone 4-6 weeks after preoperative concurrent chemoradiotherapy.

Results : Complete resection rate with negative margins was 94% (29/31). Complete response was seen in 7 patients (23%) clinically and 2 patients (6%) pathologically. Down staging of tumor occurred in 21 patients (68%). Treatment related toxicity was minimal except grade III & IV leukopenia in 2 patients, respectively.

Conclusion : Preoperative concurrent chemoradiotherapy in locally advanced rectal cancer was effective in inducing down staging and complete resection rate. Treatment related toxicity was minimal. Further follow up is on-going to determine long term survival following this treatment.

Key Words : Preoperative chemoradiotherapy, Rectal cancer