

Neoadjuvant Chemotherapy followed by Concurrent Chemo-radiation vs Radiation therapy alone in Locally Advanced Nasopharyngeal Carcinoma: Single Institute Experience

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Purpose/Objective

To evaluate the treatment outcome of neoadjuvant Cisplatinium and Epirubicin chemotherapy followed by concurrent Cisplatinium chemo-radiation (CT-XRT) in patients with locally advanced nasopharyngeal carcinoma (NPC), World Health Organization (WHO) type II and III as compared to radiation therapy alone (XRT).

Materials/Methods

Between January 1998 and December 2005, 334 patients with NPC staged according to 1997 UICC/AJCC classification system as IIB (20), III (61), IV (253), were treated with a protocol of two cycles of induction chemotherapy utilizing Cisplatinum 100 mg/m² and Epirubicin 70 mg/m² on day 1 and 21 followed by radical course of radiotherapy (6600 cGy in 6.5 weeks, 200 cGy /fraction) starting on day 42 with 3 cycles of concurrent Cisplatinum 25 mg/m² for 4 days on day 42, 63 and 84. They were compared to all patients (248) with locally advanced NPC, stage IIB (80), III (83), IV (85), treated with radiation therapy alone at King Faisal Specialist Hospital and Research Centre between January 1993 and December 2005.

Results

With a median follow-up for surviving patients of 47 months (6-105) in CT-XRT group, and 74 months (3-164) for XRT group, data were available for all patients except 2 lost for follow-up. 189 patients died: 99 patients in CT-XRT group (83 disease progression, 2 chemotherapy toxicity and 14 unrelated causes) and 90 in XRT group (79 disease progression and 11 of unrelated causes).

Results

The actuarial 5-year overall (OS), disease specific (DSS), relapse free survival (RFS) and freedom from systemic relapse (FSR) for stage IV patients in CT-XRT group and XRT alone group were 61% vs 48% ($p= 0.06$), 66% vs 49% ($p= 0.009$), 58% vs 40% ($p= 0.02$) and 78% vs 72% ($p= 0.29$) respectively. There was no significant survival difference for stage IIB and III. There was a trend for improved local control in patients with T4 treated by CT-XRT compared to XRT alone, 77% vs 61% ($p= 0.07$). There was no significant difference in regional control for N3.

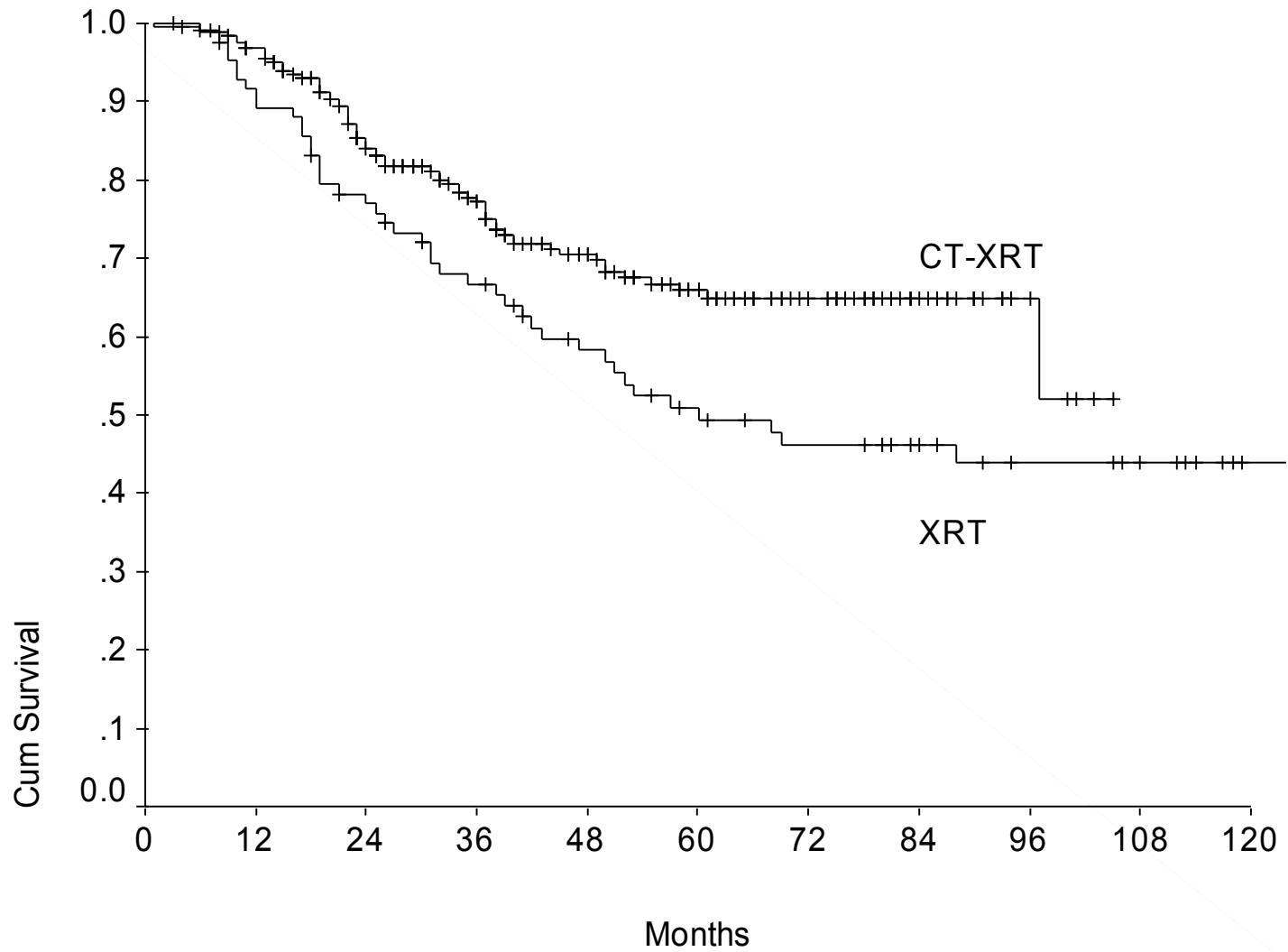
Table 1. Patients characteristics

		Chemo-Radiation (334 patients) No. (%)	Radiation Alone (248 patients) No. (%)
Gender	Male	244 (73)	175 (71)
	Female	90 (27)	73 (29)
Age	Median	44	49
	Range	14-81	14-85
Stage (TNM)	T1	34 (10)	45 (18)
	T2a	26 (8)	31 (12)
	T2b	72 (22)	56 (23)
	T3	54 (16)	56 (23)
	T4	148 (44)	60 (24)
	N0	32 (10)	56 (23)
Stage group	N1	67 (20)	104 (42)
	N2	87 (26)	54 (22)
	N3	148 (44)	34 (13)
	IIB	20 (6)	80 (32)
	III	67 (18)	83 (34)
	IV	253 (76)	85 (34)
WHO type	II	114 (34)	41 (16.5)
	III	220 (66)	207 (83.5)

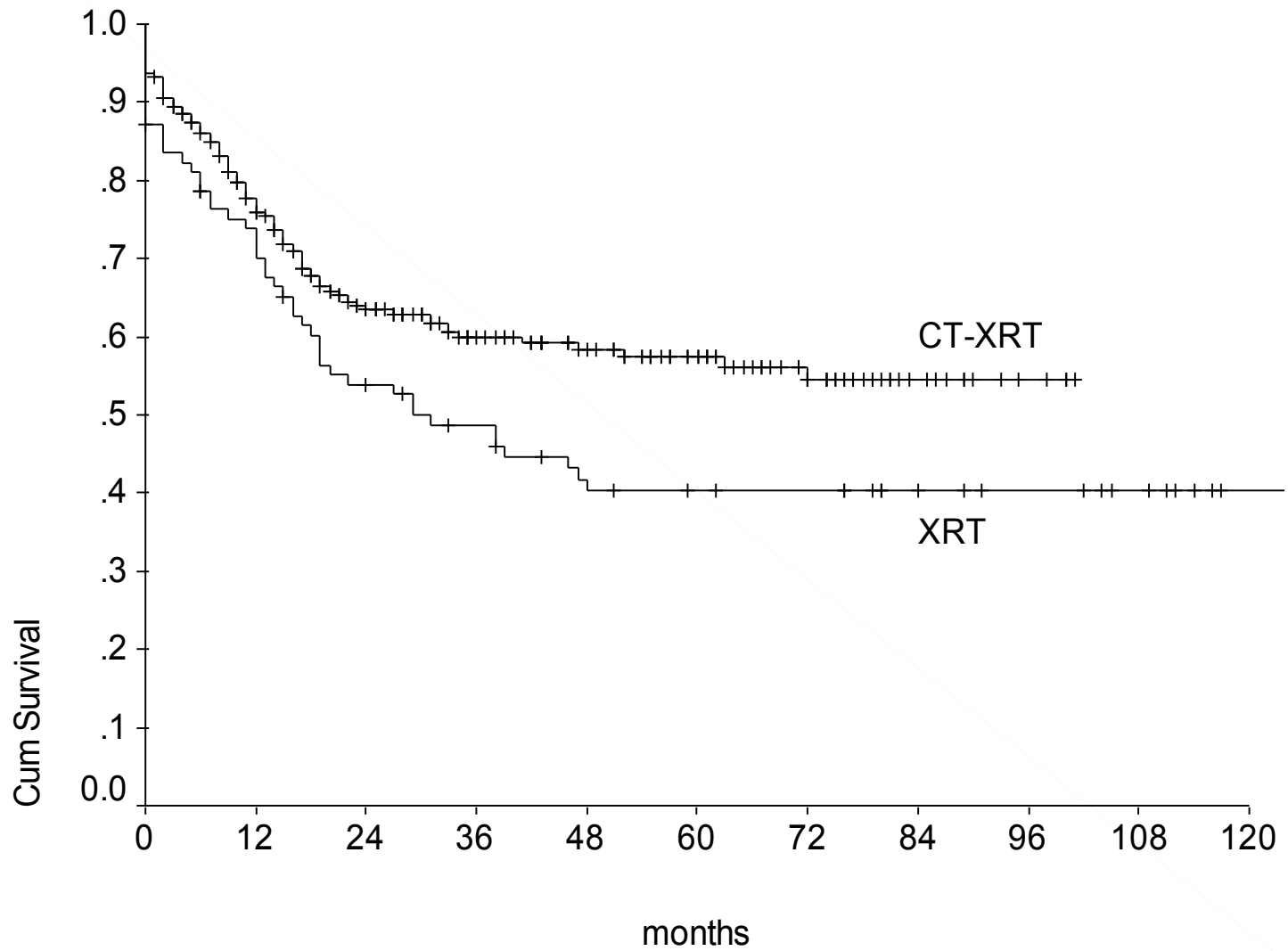
Table 2. Actuarial 5-year survival

		Chemo-Radiation	Radiation	P value
		%	%	
Stage IIb	OS	73	76	0.67
	DSS	77	76	0.81
	RFS	79	70	0.96
	FSR	85	84	0.76
Stage III	OS	74	71	0.60
	DSS	77	76	0.87
	RFS	75	64	0.36
	FSR	91	78	0.16
Stage IV	OS	61	48	0.06
	DSS	66	49	0.009
	RFS	58	40	0.02
	FSR	78	72	0.29
Local Control	T1	91	94	0.38
	T2a	96	85	0.20
	T2b	96	84	0.25
	T3	85	79	0.67
	T4	77	61	0.07
Nodal Control	N0	100	96	0.30
	N1	93	92	0.60
	N2	91	96	0.30
	N3	84	80	0.76

Stage IV DSS



Stage IV RFS



Conclusion

Neoadjuvant chemotherapy followed by concurrent chemo-radiotherapy showed improved RFS and DSS compared to radiation therapy alone in stage IV NPC.