Extended Cycles of Induction Chemotherapy for Stage III/IVA Nasopharyngeal Carcinoma

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Objective

To investigate the effectiveness and toxicity of extending induction chemotherapy to 4-7 cycles in locally advanced NPC patients

Key point

Extended induction chemotherapy is effective and achieves fair outcomes, but it is associated with significant toxicities

Introduction

Platinum-based induction chemotherapy (IC) plus concurrent chemoradiotherapy (CRT) is standard for locally advanced nasopharyngeal carcinoma (NPC). While treatment standards commonly involve 3 cycles of IC, the optimal no. of IC cycles remains unknown.

Method

Patients with stage III-IVa NPC who received 4 or more cycles of IC and RT between Jan 2018 and Nov 2023 were reviewed. The primary outcome was overall survival (OS). The secondary endpoints were event-free survival (EFS), locoregional recurrence-free (LRFS), distant metastasis-free survival (DMFS) and toxicities. Changes in gross tumor volume (GTVp) and nodal volume (GTVn) were recorded.

Results

47 patients were included in this study. Their baseline characteristics and treatment details were shown in table 1 and table 2, respectively.

Table 1. Baseline characteristics

		N (%)
Sex	Female	9 (19.1)
	Male	38 (80.9)
Age (years)	Median (IQR)	54 (41–60)
AJCC/UICC-8 Staging		
T stage	T1-2	7 (14.9)
	T3	8 (17.0)
	T4	32 (68.1)
N stage	N0-1	11 (23.4)
	N2	16 (34)
	N3	20 (42.6)
Group stage	III	4 (8.5)
	IVa	43 (91.5)
KPS	90	85 (74.5)
	80	8 (17.0)
	60-70	4 (8.5)

Table 2. Treatment characteristics

Induction chemotherapy		
Regimen	**Cycles**	**N (%)**
GP/GJ	4-5	8 (17)
	6	29 (61.7)
	7	1 (2.1)
GP/GJ x3 →Taxane x3	4-5	2 (4.3)
TPF/ TJF	4-7	7 (14.9)
Radiotherapy		
Total dose	74 Gy	12 (25.5)
	70 Gy	35 (74.5)
Concurrent chemotherapy		
Regimen	**Cycles**	**N (%)**
Cisplatin Q1wk	5-7	25 (53.2)
	1-4	12 (25.5)
Cisplatin Q3wk	2-3	7 (14.9)
Carboplatin	7	1 (2.1)
Nil	0	2 (4.3)

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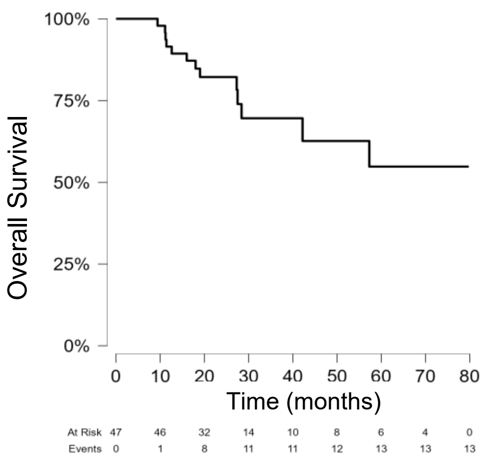
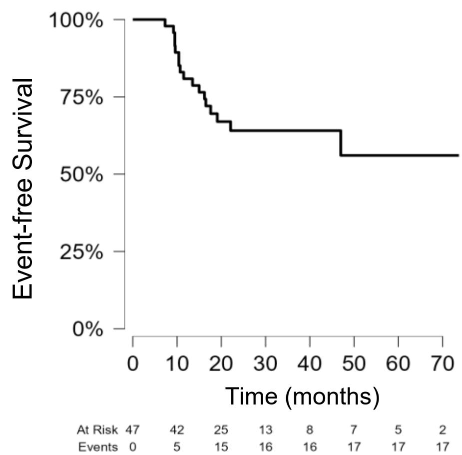
Results

At first post-treatment assessment by endoscopy & imaging, 39 (83%) achieved complete response, 6 (12.8%) residual disease and 2 (4.3%) has equivocal findings.

After a median follow-up of 25 months, the 2-year OS was 82.2%, EFS was 64.1%, LRFS was 68.1%, and DMFS was 78.3%.

Mean GTVp decreased from 62.1cc to 28.5cc ($p<0.001$), and GTVn from 66.6cc to 26.5cc ($p<0.01$).





During IC, all 47 patients experienced side effects, with 26 (55.3%) reporting grade 3-4 (G3/4) toxicities, including 19 (40.4%) G3/4 neutropenia, 19 (10.6%) G3/4 thrombocytopenia.

During RT, all experienced side effects. 34 (72.3%) G3/4 toxicities was reported, including 15 (31.9%) renal dysfunction, 10 (21.3%) electrolyte disturbance, 5 (10.6%) mucositis, 5 (10.6%) dysphagia.

No fatal complication was observed.

Conclusion

Extending IC effectively reduces tumor volume and achieves fair outcomes, though it is associated with significant toxicities. Further research is needed to enhance safety and improve patient outcomes.