

Neoadjuvant and Adjuvant Chemotherapy Outcomes and Side Effects in Diverse American Nasopharyngeal Carcinoma Patients

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INTRODUCTION

While nasopharyngeal carcinoma (NPC) is widespread in Asia and northern Africa, its incidence is significantly lower in the US. Concurrent chemoradiation (CCRT) is the primary treatment modality but adding neoadjuvant (IC) or adjuvant chemo (AC) setting has been demonstrated to improve long term outcomes. However, few studies have looked at the side effects prevalence in patients receiving IC and AC in a diverse American cohort.

AIMS

Evaluate the how rates of treatment side effects vary between adjuvant and induction chemotherapy in a cohort of diverse American patients.

METHODS

A retrospective review of 155 NPC patients at the Ohio State University James Cancer Center (Aug 2000-Dec 2022) was conducted. Demographic, clinical, and survival data were extracted from medical records. All patients received concurrent chemoradiation as their primary treatment and then were split into groups of those who also received adjuvant chemotherapy and those who received induction chemotherapy. Categorical comparisons were made using a Chi-square test, and continuous variables were compared via Mann-Whitney T-tests. Statistically significant was set at p<0.05

RESULTS

48

patients received Induction Chemotherapy

47

patients received Adjuvant Chemotherapy

Both cohorts were similar in terms of demographics (age, gender, race, smoking status, alcohol use) and baseline cancer characteristics (AJCC stage, WHO grade, p16 and EBV status)

RESULTS

Table 1. Comparison of early side effects

Side Effect	Adjuvant Chemotherapy (n = 48)	Induction Chemotherapy (n = 47)	Significance (p-value)
Vomiting	13	13	0.948
Nausea	19	26	0.176
Mucositis	25	13	0.009
Ototoxicity	12	17	0.294
Nephrotoxicity	0	2	0.043
Hepatotoxicity	0	1	0.576
Diarrhea	3	8	0.117
Constipation	5	16	0.008
Xerostomia	10	10	0.957
Weight Loss	7	19	0.007
Dermatitis	6	10	0.293
Febrile Neutropenia	1	3	0.317
Dyspnea	3	8	0.117
Fatigue/Weakness	24	27	0.609
Anxiety	0	3	0.082

Summary of statistical findings

- Cohorts were had similar demographic and tumor characteristics
- Each group had different rates of early and late onset side effects to treatment
 - Mucositis was more frequent for adjuvant chemotherapy
 - Nephrotoxicity, constipation, weight loss, trismus and lymphedema were more frequent for Induction chemotherapy
- No difference in overall survival, metastasis free survival, or recurrence free survival

Table 2. Comparison of late side effects Demographics and Outcomes

Side Effect	Adjuvant Chemotherapy (n = 48)	Induction Chemotherapy (n = 47)	Significance (p-value)
Temporal Lobe Necrosis	3	2	0.628
Cranial Neuropathy	2	2	0.982
Vision Change	1	4	0.176
Deafness/Otitis	29	22	0.116
Dry Mouth	32	38	0.207
Bone Necrosis	5	3	0.440
Trismus	5	15	0.014
Dysphagia	21	24	0.602
Lymphedema	12	24	0.013

CONCLUSIONS

Our study of a diverse American cohort of 155 NPC patients, found similar side effect rates for AC and IC with IC having more side effects at higher rates. These findings underscore the importance of personalized treatment planning and vigilant management of side effects in NPC patients undergoing chemotherapy.

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