

Risk Stratification and Treatment Strategies for Nasopharyngeal Carcinoma

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Dr Chua graduated from the Faculty of Medicine of the Chinese University of Hong Kong in 1989 and became a fellow of Hong Kong College of Radiologists in 1994. Dr Chua joined the Department of Clinical Oncology, The University of Hong Kong in 1994. His main research interest is nasopharyngeal carcinoma, with latest research focusing on the role of imaging-based and molecular prognosticators, the use of precision radiation treatment for recurrent disease, combined modality treatment using new chemotherapeutic agents, and novel therapy such as immune intervention. Dr Chua was elected council member of the Hong Kong Nasopharyngeal Carcinoma and the Hong Kong Anti-Cancer Society in 2003. Dr Chua is also currently associate editor of *Journal of Hong Kong College of Radiologists* and *Cancer Reviews Asia Pacific*.

Unlike most other squamous cell carcinomas of the head and neck, both local recurrence and distant metastases represent major failure pattern in nasopharyngeal carcinoma (NPC). Using the 1997 AJCC T and N stage combination, several clinical subsets of NPC can be defined with distinct pattern of treatment failures and prognosis. The distribution and treatment outcome of these patient subsets based on a retrospective analysis of 324 NPC patients treated during 1989-1991 are listed in the table:

	% of patients	5-year local control rates	5-year distant failure-free rates	5-year relapse-free rates	5-year survival rates
Group 1 (T1-2N0-1)	47%	87%	84%	75%	85%
Group 2 (T3-4N0-1)	23%	70%	85%	55%	82%
Group 3 (T1-2N2-3)	16%	79%	70%	50%	65%
Group 4 (T3-4N2-3)	14%	76%	60%	35%	59%

This grouping is important and essential for conducting clinical trials as it helps to select patient subsets to evaluate different treatment strategies. For example, induction chemotherapy was tested in advanced stage NPC in phase III trials but failed to show any survival benefits. A recent pooled data analysis of two trials however showed significant survival benefits in the subset T1-2N0-1 with induction chemotherapy. Group 1 consists of patients with early stage NPC or stage I-II disease. Excellent outcome can be achieved in T1N0 or stage I NPC after radiotherapy alone, with 10-year survival rate of 95-98%, and emphasis in this group is on reduction of treatment morbidities. For stage II NPC, recent data showed that long-term survival is relatively poor due to distant metastases and adjunctive chemotherapy should be considered. Local failure is the main problem in Group 2 and use of concurrent chemo-radiotherapy, altered fractionation and dose escalation are appropriate strategies but only the first approach has proved to offer benefits. Distant failure is the main problem in Group 3 and effective chemotherapeutic agents are clearly needed to improve survival. Group 4 has the worst prognosis with both distant and local failures as major cause of deaths, and novel therapeutic approaches such as new chemotherapeutic agents, targeted therapy, and immune intervention should be evaluated in prospective studies. Future trial design should incorporate this grouping for patient selection in order to maximize the chance of detecting effective strategies without exposing patients to unnecessary risk.