

Treatment outcome comparison between 33 versus 35 fractions among nasopharyngeal carcinoma using helical approach: A retrospective study

INTRODUCTION: To compare the treatment outcome in terms of survival, treatment related side effects and treatment response of 33 fractions with simultaneous intensity modulated boost (SIMB) versus sequential 35 fractions using helical approach among nasopharyngeal carcinoma patients.

METHODOLOGY:

From September 2014 to September 2018, a total of 91 patients diagnosed with nasopharyngeal carcinoma were treated with either 33 fractions with SIMB (n=34) and sequential 35 fractions (n=57) using image guided intensity modulated radiotherapy (IG-IMRT) helical approach concurrently with chemotherapy at the Central Luzon Integrated Oncology Center (CLIOC) and were followed up for four years. All were histopathologically confirmed undifferentiated and squamous cell type. Targets were defined as GTV=70Gy, CTV66 = 66Gy, CTV60=60Gy and PTV (target + 3mm) at 200 cGy per fraction. Daily megavoltage computed tomography was done and organ at risk were define with tolerance dose based on QUANTEC. Side effects were recorded based on common toxicity grading (CTC) ver 2.0. Patients were followed up using magnetic resonance imaging (MRI) every three months on the first year, every six months on second year and every year on the third year onwards.

RESULTS:

There was no statistically significant difference in terms of clinical profile for patients treated with 33 fractions compared to 35 fractions. Patients who received 33 fractions showed no statistically significant difference in terms of survival time compared with 35 fractions (863 days vs 903 days, $p = 0.085$). Four-year survival rate was higher in the 33 fractions compared to the 35 fractions group, 97.1% vs 89.5% respectively (Fig. 1) but not statistically significant.

No statistically significant difference was noted in the proportion of patients who reported treatment related side effects such as xerostomia, ageusia, dysphagia, mucositis and skin desquamation among 33 and 35 fractions (Fisher's exact test p -values > 0.05) [Table 1]. although the mean time to event was shorter in the 33 fractions group. Treatment response showed 41.2% vs 35.1% improved, 8.8% vs 7% no improvement and 5.9% vs 1.8% re-treatment for 33 and 35 fractions respectively and found no significant difference (p value 0.511) [Table 2].

CONCLUSION:

The study presents 33 fractions with SIMB using IG-IMRT helical approach may be a practical option in treating nasopharyngeal carcinoma and it showed comparable results in terms of survival, treatment related side effect and response compared with the standard 35 fractionation

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