AbstractID: 12776 Title: Effect of Leaf Motion Calculator parameters in Head and Neck IMRT

Purpose: To investigate the dosimetric effect of the Leaf Motion Calculator (LMC) parameters using sliding window technique in head and neck IMRT. **Materials and Methods:** Two head and neck IMRT patients (T1/T2,N0) were selected for this study. The actual fluence of the IMRT plans were calculated by varying the LMC parameters which includes, dose rates from 100 to 600 MU/min, MLC limiting leaf speed (0.5 to 3.0 cm/sec) and minimum dynamic leaf gap (0.05 to 0.2cm) from the same optimal fluence. The doses to OAR, total monitor unit (MU), low and high dose volumes were analyzed.
Results: The doses to OAR, low and high dose volume (10%, 50% & 95% of isodose) increases with increase in dose rate and decreases with increase in limiting leaf speed. The total MU also increases with increase in dose rate and decreases with increase in leaf speed. When the dose rate increases from 300 MU/min to 600MU/min, the total MU significantly increase by 12% at a limiting leaf speed of 2.5cm/sec. There was no significant difference in doses to OAR, total MU, low and high dose volumes for minimum dynamic leaf gap between 0.05 to 0.10 cm. **Conclusion:** OAR sparing is observed with lower dose rate and higher leaf speed. There is no significant difference in PTV coverage and high dose volumes with dose rate as well as limited leaf speed. However, in the low dose volumes significant difference was observed for leaf speed less than 1.5cm/sec.