Abstract ID: 17854  Title: Variation in Applicator Positions During Interfraction High Dose Rate Brachytherapy in Carcinoma Cervix: Dosimetric Evaluation

Purpose: To study the variations in geometrical and dosimetric parameters, between HDR brachytherapy fractions.

Methods: 49 patients of Ca.Cx. received HDR brachytherapy in two groups comprising 21 and 28 patients, respectively, and dose prescribed at point-A. Group-I and Group-II patients received a dose of 9.5Gy—2Fx and 7.5Gy—3Fx at an interval of 10 days and one week between each fraction, respectively. Total 252 orthogonal films were used to evaluate a and β angles, Intrauterine length(IUTL), distance-a, distance-b, distance-c, distance-d, co-ordinates of right and left ovoid, OS with respect to origin in AP & LAT radiographs, and variation in right and left point A doses and ICRU reference volume.

Results: Variations in a, β and IUTL ranges from 0 - 20degree, 0 - 18degree and 0.0 - 1.0cm, respectively, in Group-I, and from 3.0 - 21degree, 0 - 12degree and 0.1 - 1.6cm, respectively, in Group-II, in distances a, b, c and d were from 0.0 - 1.4cm, 0.0 - 2.0cm, 0.0 - 4.7cm, and 0.0 - 2.5cm, respectively, in Group-I, and from 0.1 - 1.1cm, 0.0 - 2.2cm, 0.0 - 2.7cm, and 0.0 - 1.8cm, respectively, in Group-II. The variations in distance of right and left ovoid from origin varied 0.0 - 1.6cm and 0.10 - 1.90cm, respectively, in Group-I and 0.37 - 2.8cm and 0.20 - 4.12cm, respectively in Group-II. Variations in OS from origin varied from 0.14 - 3.05cm in Group-I, and from 0.12 - 4.16cm in Group-II.

Average dose to point A in Group-I and Group-II were 19Gy±0.0002Gy and 22.498Gy±0.38Gy, respectively. The mean and mean effective volumes irradiated in Group-I were 227.83cm³ and 205.05cm³, respectively, and in Group-II these were 233.47cm³ and 198.45cm³, respectively.

Conclusions:

Variations in different parameters are more in Group-II patients than in Group I indicates that variation in geometrical and dosimetric parameters increases with increasing HDR number of fractions. Therefore during reporting an outcome of multiple fractionation HDR treatment, resultant dosimetric parameters must be evaluated.