

## AbstractID: 8341 Title: Dose Volume Analysis of HDR Breast Brachytherapy Plan

**Purpose:** To report dose volume analysis for HDR interstitial breast brachytherapy. **Method and Materials:** The interstitial HDR brachytherapy is performed on localized breast carcinoma patients using a custom made template. The catheters were implanted using the template to cover surgical resection with 1.5cm margin. A custom made template, with adjacent grids forming a triangle with 1cm spacing along base and 1 cm along vertical. The design goal was to obtain uniform coverage around PTV and to minimize dose gradient inside volume. The treatment was delivered for 34Gy in 10 fractions over 5 days. Four criteria were used for plan evaluation. The PTV must encompass with reference dose (RD) from 0.95 to 1.0 x RD,  $\leq 30\%$  of PTV must encompass with 1.5xRD,  $\leq 10\%$  of PTV must encompass 2xRD and the skin dose must be kept  $< 0.75xRD$ . We have recorded the volume of lung and heart tissue covering 10% of the RD. Also we have measured the skin dose on inferior and superior implant planes. **Results:** The coverage was in the range of 96 to 100% (N=80) at a median value of 98%. The % of PTV coverage for 1.5RD was in the range of 7 to 32 (N=80) at median value of 28, 3 patients exceeded the 30% criteria. The % of PTV for 2xRD was in the range of 4.5 to 16 at median value of 12 with 8 patients exceeding 10% criteria. The measured skin dose ranged from 25 to 87% of RD at a median value of 74%, with 3 patients (N=80) exceeding the 0.75 RD criteria. **Conclusion:** The patients tolerated the treatment very well and there were no complications of skin reaction or fat tissue necrosis observed in the series of patients treated with modified template.

**Conflict of Interest (only if applicable):**