PRELIMINAR EVALUATION OF A NEW BRA FOR LANGE OR PENDULAR BREASTS IRRADIATION

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BACKGROUND

Treating patients with large or pendulous breasts can be problematic. The aim of the present study is to investigate the possible dosimetric benefit of a new bra (Chabner XRT® Radiation Bra CIVCO) for large or pendulous whole breast irradiation (WBI), as well as assess its impact on reproducibility and toxicity are assessed.

MATERIAL AND METHODS

Prospective study of patients with large or pendulous breast treated with conservative surgery and sentinel node biopsy candidates to WBI. Mammary ptosis classified according to Regnaul scale: GI: mild, GII: moderate and GIII: severe. Two CT studies were carried out in 14 patients, with one study using the breast bra. Radiation plans were produced with bra and without bra and the following paràmetres were compared: Dmean lung dose (ipsilateral) and V16Gy, Dmean heart dose and V10Gy and Dmean liver dose. Daily verification of patient positioning was done using Cone Beam CT. Toxicity was evaluated weekly according to RTOG scale. Statistics: difference of means in the cohorts, paired Student's T-test, Pearson's correlation coefficient. Significant probability: $p<0.05$.

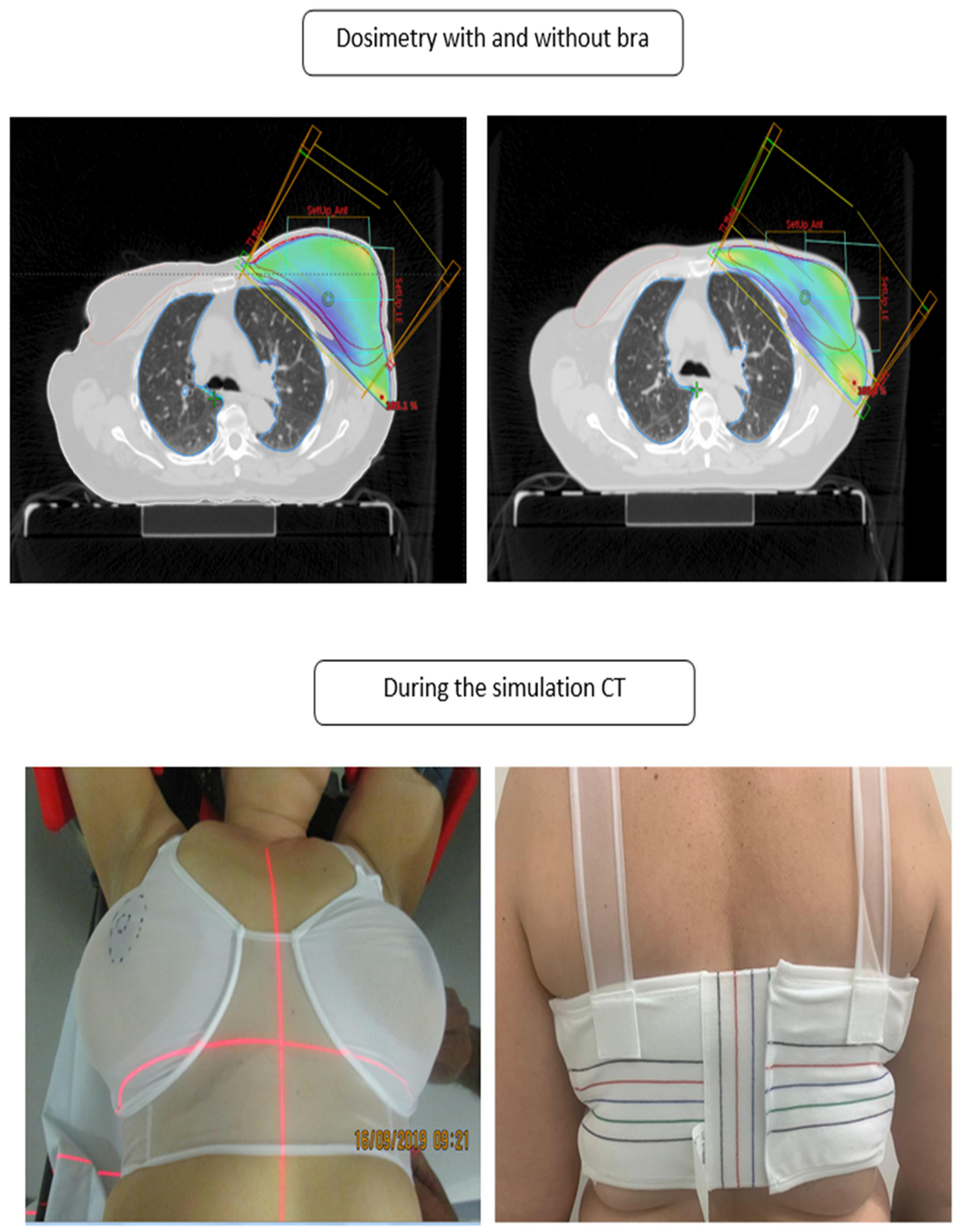
RESULTS

Table 1 shows the global results. The use of bra resulted in a significant dose reduction in lung (Dmean and V16Gy reduced by 7% and 11%, respectively), in heart (V10Gy reduced by 9%) and in liver (60% reduction in Dmean).
Regarding breast volume and ptosis grade, the highest benefits were seen in large breasts> 2000 ml and in GIII ptosis subgroup. Reproducibility was excellent, with minor positioning shifts during treatment. No acute skin toxicities > G2 and no differences were observed compared patients treated without bra.

Table 1.

MEAN VALUES, STANDARD DESVIATION, AND RANGE OF DOSES IN THE HEART, LUNG AND LIVER WITH AND WITHOUT BREAST BRA					
n = 14	**With bra**	**Without bra**	**differen**	**p**	**Corr. coef**
Ipsilateral lung Dmean (Gy)	7,66 SD 0,672 RANGE 3,60-11,30	8,18 SD 0,75 RANGE 3,40-13,40	7%	0,000	0,926
Ipsilateral lung V16 (Gy)	15,71 SD 1,94 RANGE 4,60-27,60	17,41 SD 2,07 RANGE 6,50-31,0	11%	0,000	0,947
Heart Dmean (Gy)	3,87 SD 0,81 RANGE 1,70-9,30	3,88 SD 0,64 RANGE 2,16-7,90	0%	0,000	0,965
Heart V10 (Gy)	6,99 SD 0,80 RANGE 2,30-17,70	7,65 SD 0,81 RANGE 3,50-9,0	9%	0,002	0,935
Liver Dmean (Gy)	2,62 SD 0,70 RANGE 1,0-6,0	4,18 SD 0,73 RANGE 1,80-5,70	60%	0,549	0,311

Image 1.



CONCLUSIONS

Our results show that the use of Chabner XRT® Radiation Bra during WBI for patients with large or pendulous breasts improved all the main dosimetric factors evaluated. The treatment reproducibility was excellent and no acute toxicities > G2 were observed.

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