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Breast preservation after local recurrence of breast cancer: Comparison of length and quality of life (QoL) between breast conserving surgery with intraoperative radiotherapy (TARGIT-IORT) versus mastectomy.

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Background: Mastectomy is the standard treatment of in-breast-recurrence of breast cancer after breast conserving surgery (BCS) and external beam radiation therapy (EBRT). In selected cases it is possible to preserve the breast if TARGIT-IORT can be given during the second lumpectomy. We present a comparative analysis of overall survival and QoL. **Methods:** We identified all patients who had local recurrence of breast cancer after BCS and EBRT in our prospectively maintained database. Patients were included if they had undergone either a mastectomy or BCS along with TARGIT-IORT. Patients with distant disease were excluded. Identified patients were contacted and offered participation in a prospective QoL-analysis using the BREAST-Q questionnaire. The cohorts were compared for confounding parameters, overall survival, psychosocial/physical/sexual wellbeing and satisfaction with the surgical result. **Results:** 36 patients treated for local recurrence were included in this analysis, 21 had received a mastectomy and 16 patients had chosen to preserve their breast and after due discussion, received BCS along with TARGIT-IORT. Mean follow-up was 12.8 years since primary diagnosis and 4.2 years since recurrence. There were no significant differences between both groups regarding age, ER, PR, HER2neu, tumor size or nodal status at primary diagnosis or at recurrence and the distribution of invasive versus non-invasive recurrences. 1 patient in the BCT and TARGIT-IORT group (6.7%) and 3 patients in the mastectomy group (14.3%) died during follow up. Overall survival was numerically longer for BCS and TARGIT-IORT either calculated from primary diagnosis (median 18 years versus 8 years) or from recurrence (median 5.1 years versus 3.2 years), but the numbers were too small for formal statistical analysis. No patient had further in-breast-recurrence of cancer. 12 patients in the mastectomy group and 10 patients in the BCS and IORT group returned the BREAST-Q questionnaire. Psychosocial wellbeing, sexual wellbeing and satisfaction with the surgeon did not differ between both groups. Physical wellbeing was significantly superior for those whose breast could be preserved (median score for BCS and TARGIT-IORT group was 91 (71-100) vs. 66 (14-100) for the mastectomy group, p-value = 0.021). **Conclusions:** Many patients who have local recurrence of breast cancer are reluctant to lose their breast. We found that preserving the breast by use of TARGIT-IORT was safe with no re-recurrence and no detriment to overall survival. This is necessarily a small series, because local recurrence is rare, yet, this novel approach led to a statistically significant improvement in physical wellbeing. These data should increase the confidence in offering breast preservation after in-breast-recurrence of breast cancer. Research Sponsor: None.