

Long-term oncologic outcome of breast-conserving surgery in breast cancer with BRCA 1/2 mutation (ON-BRCA II, KoREa-BSG 06).

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Background: Among patients with sporadic breast cancer, it is well known that prognoses are similar following breast-conserving surgery (BCS) versus mastectomy. However, previous data assessing oncologic outcomes between BCS and mastectomy in patients with BRCA mutation are limited and inconsistent. Thus, this study aims to compare the oncologic outcomes including locoregional recurrence (LRR), distant recurrence (DR), and overall survival (OS) among this population. **Methods:** Patients with BRCA mutation and index breast cancer who underwent BCS or mastectomy between January 2008 and December 2015 were retrospectively screened from 13 institutions. We included patients aged from 20–80 with invasive breast cancer (pT1–3 N0–3). Patients with de novo metastasis were excluded. To minimize selection bias from retrospective nature, the propensity score matching (PSM) with Greedy nearest neighbor method was performed for covariates including age, molecular subtype, and tumor stage. **Results:** A total of 553 patients with BRCA mutation were identified. Among them, 367 (66.2%) patients received BCS and 186 (33.8%) were treated with mastectomy. After 1:1 PSM, there was no significant differences in age, molecular subtype, tumor size, nodal status, and histologic tumor grade between patients undergoing BCS versus mastectomy. At 8.3 years of median follow up, LRR, DR, and OS rates did not differ between groups (all $p > 0.05$). On multivariate analysis, type of breast surgery (BCS vs. mastectomy) was not significantly associated with the oncologic outcomes after adjusting covariates including age, molecular subtype, tumor stage, and histologic grade (all $p > 0.05$). Additionally, we performed subgroup analysis in matched patients based on tumor size, LN metastasis, HG, and subtype. In all subgroup, the type of breast surgery was not a significant risk factor influencing disease recurrence. **Conclusions:** Our findings suggest that there was no difference in oncologic outcomes among BRCA mutation carriers who underwent BCS or mastectomy. Breast conservation with close surveillance is a reasonable treatment option for BRCA mutation carriers. Further studies combined with prospectively collected data are warranted to validate our findings. Research Sponsor: None.