

AB047. SOH21AS039. Combined breast conservation therapy versus mastectomy for BRCA mutation carries— a systematic review and meta- analysis

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Background: The non-inferiority of combined breast conservation surgery (BCS) and radiotherapy (breast conservation therapy or BCT) in sporadic breast cancer cases is well recognised. Uncertainty remains regarding optimal surgical practice in BRCA mutation carriers. We wished to evaluate the oncological safety of combined BCT versus mastectomy in BRCA mutation carriers following breast cancer diagnosis.

Methods: A systematic review was performed as per PRISMA and MOOSE guidelines. Observational studies comparing BCS and mastectomy in BRCA carriers were identified. Dichotomous variables were pooled as odds ratios (OR) using the Mantel-Haenszel method. Log hazard ratios (lnHR) for locoregional recurrence (LRR), contralateral breast cancer, disease-free and overall survival and their standard errors were calculated from Kaplan-Meier or cox-regression analyses and pooled using the inverse variance method.

Results: Twenty-two studies of 3,552 patients met inclusion criteria; 2,031 (64.3%) were BRCA1 and 1,126 (35.7%) were BRCA2 carriers. Median age at diagnosis was 41 years with 97 months follow up. BCS was performed on 2,092 (58.9%) while 1,408 (39.6%) underwent mastectomy. An increased risk of LRR was observed in patients treated with BCS (HR: 4.54, 95% confidence interval: 2.77–7.42,

$P < 0.001$, heterogeneity ($I^2 = 0\%$). However, the risks of contralateral breast cancer (HR: 1.51, 95% CI: 0.44–5.11, $P = 0.510$, $I^2 = 80\%$), disease recurrence (HR: 1.16, 95% CI: 0.78–1.72, $P = 0.470$, $I^2 = 44\%$), disease-specific recurrence (HR: 1.58, 95% CI: 0.79–3.15, $P = 0.200$, $I^2 = 38\%$) and death (HR: 1.10, 95% CI: 0.72–1.69, $P = 0.660$, $I^2 = 38\%$) were equivocal for combined BCT and mastectomy.

Conclusions: Survival outcomes following combined BCT is comparable to mastectomy in BRCA carriers. However, the risk of LRR is increased. Patient counselling should be tailored incorporate these findings.

Keywords: Surgical oncology; BRCA; genetics; personalised medicine

Acknowledgments

Funding: None.

Footnote

Conflicts of Interest: AL serves as an unpaid editorial board member of *Mesentery and Peritoneum*. The other authors have no conflicts of interest to declare.

Ethical Statement: The authors are accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved.

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doi: 10.21037/map-21-ab047

Cite this abstract as: Davey M, Ryan E, Davey C, Lowery A, Kerin M. Combined breast conservation therapy versus mastectomy for BRCA mutation carries—a systematic review and meta-analysis. *Mesentery Peritoneum* 2021;5:AB047.