170P Impact of neoadjuvant therapy (NT) and pathological complete response (pCR) on breast-conserving surgery (BCS) in patients (pts) with breast cancer (BC): A meta-analysis

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Background: We performed a meta-analysis of randomized trials that evaluated the pCR and surgical decisions after NT for BC.

Methods: Studies were retrieved by searching the PubMed database and the proceedings of major conferences. The primary outcome was BCS rate. Secondary outcomes were pCR rate and association to BCS. Meta-analyses were performed using random-effects (RE) models that use inverse-variance weighting for each treatment arm based on the number of evaluable pts. Point estimates are reported with 95% confidence intervals, and $p < 0.05$ was considered statistically significant.

Results: 36 studies were identified (N = 12,311 pts). 17/36 studies reported both pCR and BCT for at least 1 treatment arm, and comprise the studies in this analysis. The number of arms per study ranged from 1 to 6, such that 42 independent units were available to evaluate the association between pCR and BCT. The BCS rate ranged from

5% to 76% across arms with an average BCS of 57% (95% CI 52%-62%). Significant heterogeneity was observed among the trials (Cochrane $Q = 787$, $p < 0.001$, $I^2 = 97\%$). In the meta-regression model, BCS rates were not significantly associated with year of first patient-in ($p = 0.89$), grade ($p = 0.93$), hormone-receptor status ($p = 0.39$). Clinical N-stage ($p = 0.01$) and HER2 status ($p = 0.03$) were significantly associated with BCS. pCR rate ranged from 3% to 60% across studies. The average pCR across all study arms was 24% (95% CI 19%-29%). No association was observed between pCR rate in a study arm and the resulting BCS rate in a univariate model ($p = 0.34$) nor after adjusting for HER2 and clinical nodal status ($p = 0.82$). Change in BCS with NT was further derived from the subset of 14 multi-arm trials, where 17 pairwise contrasts were made between randomized populations: 2 studies showed a significant difference in BCS. The difference in pCR rates between treatment arms ranged from -22% to 24%. However, no significant association is seen with the corresponding difference in BCS rates ($p = 0.27$).

Conclusions: This meta-analysis indicates that, despite increasing pCR, there is no concomitant increase in BCS. Future NT studies should reconsider using BCS as an endpoint.

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