METHODS: We propose a new technique of preserving the intercostal nerves during mastectomy and using them to reinnervate the NAC following mastectomy and immediate autologous tissue reconstruction. A cadaveric nerve graft was then coapted to the proximal nerve stump using interrupted 7-0 prolene sutures. The nerve graft was tunneled through the flap using a passer and neurorrhaphy was performed at the base of the NAC with simple interrupted 7-0 prolene sutures, anchoring the perineurium of the nerve allograft to the nerve stump when available or dermis of the NAC. We performed a prospective analysis of 14 breasts that underwent nipple reinnervation during immediate autologous breast reconstruction. Mean age was 49 years (range, 32–61 years). Sensory outcomes, as tested with Semmes-Weinstein monofilaments, were compared with a cohort of breasts that underwent nipple sparing mastectomy and autologous reconstruction without neurotization.

RESULTS: Compared with control breasts, treated breasts had significant improvement in whole breast sensation (treatment 4.8 ± 1.5; control 5.4 ± 1; P = 0.0001). In addition, treated breasts had no significant difference in nipple sensation compared with preoperative findings (treatment preoperative, 3.2 ± 0.52; treatment postoperative, 3.9 ± 1.1; P = 0.096) for those patients followed for >8 months, compared with control postoperative breasts who had significantly less nipple sensation (control preoperative, 2.83; control postoperative, 4.9 ± 1.5, P = 0.0001) at median follow-up time of 36 months. Treated breasts also had significantly increased areolar sensation (control, 5.68 ± 0.9; treated 4.84 ± 1.4; P = 0.0001) and nonsignificant improvement of peripheral breast skin (control, 4.9 ± 1.1; treated, 4.60 ± 1.5; P = 0.1321) versus control breasts.

CONCLUSION: Here, we report a technique of targeted NAC reinnervation that enhances NAC sensation following NSM with autologous reconstruction with reinnervation versus NSM with autologous reconstruction alone. In contrast to prior studies, we employ a control group to objectively quantify the extent of sensory restoration in the reinnervated group. All patients had sensory recovery at the nipple, in contrast to fractions of patients in prior studies.
TXA, whereas 156 patients (280 breasts) did not. Patient characteristics and comorbidities were similar among the groups. The location of tissue expander placement (prepectoral versus subpectoral), mastectomy specimen weight, and use of acellular dermal matrix were also similar among the cohorts. Patients who received TXA were more likely to undergo nipple-sparing mastectomy (n = 232, 62%) than the patients who did not receive TXA (n = 125, 44.6%) (P < 0.0001). Patients who received topical TXA were significantly less likely to develop postoperative seromas (n = 28, 7.5%) than patients who did not receive TXA (n = 35, 12.5%) (P = 0.032). Furthermore, patients who received TXA also had their surgical drains removed significantly earlier (12.3 ± 4.3 days) than the patients who had not received topical TXA (13.1 ± 4.9 days) (P = 0.024). Rate of hematoma among patients who received TXA (n = 3, 0.8%) was not significantly different than the patients who did not (n = 5, 1.8%) (P = 0.256). Adverse effects of TXA were not observed. Average follow-up among the TXA group and patients who did not receive TXA was 6.1 ± 3.9 months and 5.9 ± 2.8 months, respectively (P = 0.675).

CONCLUSION: In the first reported use of topical TXA during IBR, the authors conclude that the use of topical tranexamic acid is associated with both a decreased risk of postoperative seroma and decreased drain duration, with an acceptable safety profile. Larger cohort analyses and prospective randomized controlled studies are warranted to further support these findings.

A Cost–Utility Analysis Comparing Immediate Oncoplastic Surgery to Delayed Oncoplastic Surgery in Smoking Breast Cancer Patients

Presenter: Joshua A. Bloom, MD

Co-Authors: Ammar A. Asban, MD, MAS; Tina Tian, MD; Yurie Sekigami, MD; Albert Losken, MD; Abhishek Chatterjee, MD, MBA, FACS

Affiliation: Tufts Medical Center, Boston, MA

PURPOSE: Oncoplastic surgery allows for lower positive margin rates and improved aesthetic outcomes compared with traditional breast conservation surgery.1 A Level 2 volume displacement oncoplastic surgery (LVOS) (also known as an oncoplastic reduction) allows for a large partial mastectomy through a reduction mammoplasty incision and is ideal for breast cancer patients with macromastia. Typically, a concurrent ipsilateral reduction mammoplasty is also performed.2,3 However, if the patient is a smoker, the decision to perform a concurrent reconstruction is challenging. It can be argued that in order to allow sufficient time for the patient to stop smoking, reconstruction should be delayed until after adjuvant radiation. However, radiation can also cause poor wound healing and can increase the risk of a wound-related complication. LVOS with immediate and delayed reconstruction are associated with different clinical outcomes and costs. Our aim was to examine the cost–utility of immediate versus delayed reconstruction in LVOS when operating on a smoking patient with macromastia and a long-term commitment to smoking cessation.

METHODS: A literature review was performed to determine the probabilities and outcomes related to the treatment of unilateral breast cancer with immediate or delayed reconstruction with LVOS.1–3 Reported utility scores were used to estimate the quality adjusted life years associated with a successful procedure as well as postoperative complications. A decision analysis tree was constructed with rollback analysis to highlight the more cost-effective strategy. An incremental cost–utility ratio was calculated. Single variable and probabilistic sensitivity analyses were performed to validate the robustness of the results.

RESULTS: Immediate LVOS is associated with a higher clinical effectiveness (quality adjusted life years) of 33.3 compared with delayed (33.26), with a higher increment of clinical effectiveness of 0.07 and relative cost reduction of $3458.11. This resulted in a negative incremental cost–utility ratio of −50,194, which was in favor of immediate reconstruction, indicating a dominant strategy. In 1-way sensitivity analyses, delayed reconstruction was the more cost-effective strategy if the probability of successful immediate reconstruction falls below 29% or its cost exceeds $29,611. Monte Carlo analysis showed a confidence of 99% that immediate oncoplastic surgery costs less and is the more effective strategy.

CONCLUSIONS: Despite the known risk of postoperative complications associated with smoking, immediate LVOS is more cost-effective compared with delayed LVOS. The risks of postoperative complications are higher when operating on a radiated breast in the delayed setting, thus favoring immediate LVOS.

REFERENCES:
1. Munhoz AM, Aldrighi CM, Montag E, et al. Outcome analysis of immediate and delayed conservative breast surgery