CONCLUSION: Our study demonstrated significantly lower complication rates and drain duration among the ciNPT group. These results may translate to improved patient outcomes and efficient use of resources in a hospital setting. Further studies are needed to corroborate the findings in our study. *ciNPT=PREVENA™ Therapy

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Intraoperative Nerve Blocks for Tissue Expander Breast Reconstruction: Results of a Prospective, Double-Blind, Randomized, Placebo-controlled Trial

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PURPOSE: We investigate whether intraoperative nerve blocks improve the quality of recovery from immediate tissue expander/implant breast reconstruction. No current Level I or II evidence addresses this question.

METHODS: A prospective, randomized, double-blinded, placebo–controlled, clinical trial was conducted in which patients undergoing immediate tissue expander/implant based breast reconstruction were randomized to either: 1) intraoperative intercostal and pectoral nerve blocks with 0.25% bupivacaine with 1:200,000 epinephrine and 4 mg dexamethasone or 2) sham nerve blocks with normal saline. The surgeon, patient and researchers collecting postoperative data were blind to group allocation. Quality of recovery (QoR 40), pain score, and opioid use in the postoperative period were compared between groups using the Mann-Whitney’s U test. Fisher’s exact test was used between categorical variables.

RESULTS: 45 total subjects were enrolled. There were no statistically significant differences in quality of recovery, pain burden, or opioid consumption between groups at 24 hours following surgery. The difference in overall QoR 40 score approached clinical significance, and data trended towards reduced total opioid consumption and better pain control in PACU in the treatment group. Both groups had a good quality of recovery. There were no injection-related complications.

CONCLUSIONS: Intraoperative nerve blocks can be a safe and effective adjunct to a comprehensive regimen to improve quality of recovery and pain control following tissue expander/implant breast reconstruction.

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A Cost-utility Analysis Comparing Large Volume Displacement Oncoplastic Surgery To Mastectomy With Single Stage Implant Reconstruction In The Treatment Of Breast Cancer

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PURPOSE: For larger cancers in moderate to large breast sized women, breast surgical cancer treatment may include large volume displacement oncoplastic surgery (LVOS) or mastectomy with single stage implant reconstruction (SSIR). Often in the case of LVOS, reduction mammoplasty designs are used in the oncoplastic reconstructions with a contralateral symmetry operation. The goal of this study was to investigate the cost-utility between LVOS versus SSIR to determine which approach is cost-effective in the treatment of breast cancer. There has been no previous cost nor clinical effectiveness analysis comparing these techniques.

METHODS: A review of the literature was performed to calculate probabilities for clinical outcomes for each surgical option (LVOS versus SSIR), and to obtain utility scores that were converted into quality adjusted life years (QALYs) as measures for clinical effectiveness. For a cost assessment pertaining to outcomes in each surgical option, average national Medicare payment rates using DRG and CPT codes were used. Radiation was assumed as adjuvant treatment in the LVOS arm. A decision analysis tree was constructed comparing LVOS to SSIR into which these probabilities, QALYs and costs were placed. An incremental cost-utility ratio (ICUR) was calculated comparing the difference for both surgical options in costs by the difference in clinical-effectiveness to see which surgical option was more cost-effective. To validate our results, we performed one-way sensitivity analyses in addition to a Monte-Carlo analysis.
RESULTS: The decision tree shows the associated probabilities, QALYs and costs for each clinical outcome arising from either the LVOS arm or the SSIR arm. An ICUR of $644/QALY favoring LVOS was calculated based off of its clinical-effectiveness gain of 7.11 QALY at an additional cost of $4,579.43 (partly due to the additional costs of radiation treatment and the bilateral operation needed for LVOS compared to no radiation and unilateral surgery for SSIR). This proved that LVOS is a cost-effective surgical option given that a surgical approach is deemed cost-effective if its ICUR is less than $50,000/QALY. One-way sensitivity analyses underscored the degree by which LVOS was cost-effective. For example, LVOS became cost-ineffective when a successful LVOS cost more than $50,000. Similarly, probabilistic sensitivity analysis using Monte-Carlo simulation showed that even with varying multiple variables at once, results tended to favor our conclusion supporting the cost-effectiveness of LVOS.

CONCLUSION: For the appropriate patients with moderate to large sized breasts with breast cancer, large volume displacement oncoplastic surgery is cost-effective in breast cancer treatment compared to mastectomy with single staged implant reconstruction. This provides yet another reasonable breast conservation surgical option for the breast cancer patient.

Enhanced Recovery After Surgery Pathway for Microsurgical Breast Reconstruction: a Systematic Review and Meta-Analysis

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PURPOSE: Enhanced Recovery After Surgery pathway (ERAS) was introduced in 1997 as a multimodal approach to improve postoperative outcomes. ERAS pathways have become increasingly accepted and implemented for many procedures in several surgical specialties, which successfully improved postoperative pain control, reduced length of stay (LOS), and reduced costs. However, there is yet no widely accepted ERAS for microsurgical breast reconstruction. The purpose of this study is to conduct a systematic review of the current literature on ERAS for microsurgical breast reconstruction and to do a meta-analysis to determine whether the use of ERAS in microsurgical breast reconstruction cases is associated with any changes in LOS, or postoperative morbidity.

METHODS: We searched PubMed, Embase, Cochrane, Scopus and Web of Science for all randomized control trials, case-control, retrospective cohort, and prospective cohort studies published prior to June 2016 that contain original data investigating ERAS in microsurgical breast reconstruction in relation to postoperative LOS and morbidity. Studies found were screened using eligibility criteria previously agreed upon by the authors. Meta-analysis, odds ratio(OR) and 95% confidence interval (CI) were used to pool acquired data.

RESULTS: The initial search identified 87 studies. Two independent screeners identified four original articles, with a pooled population of 676 patients that met the inclusion criteria. Of those, there were three retrospective studies and one prospective study. While LOS data was not homogenous enough to do a meta-analysis, ERAS LOS was reported in three studies to be lower when compared to the previous protocols, from 6.6 to 3.9 days (p < 0.001), 7.4 to 6.2 days (p< 0.001), and 6.2 to 3.1 days (p< 0.001). Two studies were pooled for the meta-analysis of postoperative morbidity, which suggested that ERAS was not associated with changes in 30 days postoperative morbidity; partial flap loss p=0.44 (OR 1.80, 95% CI: 0.41–7.95), total flap loss p=0.91 (OR 1.07, 95% CI: 0.35–3.23), breast hematoma p=0.69 (OR 1.15, 95% CI: 0.59–2.21), donor site infection p=0.53 (OR 1.29, 95% CI: 0.58–2.86), urinary tract infection p=0.29 (OR 0.37, 95% CI: 0.06–2.29), and pneumonia p=0.42 (OR 1.81, 95% CI: 0.43–7.66).

CONCLUSION: Our review suggests that ERAS in microsurgical breast reconstruction is associated with lower LOS. Meta-analysis suggests that ERAS is not associated with increased postoperative morbidity. The results of this review are limited by the low number of prospective and randomized controlled trials, the small number of patients and studies included, and the moderate heterogeneity of the groups evaluated within the included studies.

Synthetic Mesh versus Acellular Dermal Matrix for Oncologic Chest Wall Reconstruction: A Comparative Analysis