Randomized Control Trial of the Utility of Preoperative CT-Angiography in Deep Inferior Epigastric Artery Perforator Flap Breast Reconstruction

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**BACKGROUND:** CT-angiogram has become the preferred method for the planning of abdominal-based microsurgical breast reconstruction to gather information about location, number, caliber, and trajectory of the abdominal perforators and to decrease overall flap dissection and operating room time. However, the high-level evidence to support its utility has been limited to nonrandomized retrospective and prospective studies.

**METHODS:** Patients undergoing deep inferior epigastric artery perforator flap breast reconstruction were prospectively randomized to preoperative CT-angiogram and no imaging groups. Patient demographics, operative times, selected row, and number of perforators for flap harvest, agreement in perforator selection between radiologist and surgeon and clinical outcomes data were collected. Two-way analysis of variance, Fisher’s exact, and Student’s t tests were used for statistical analysis.

**RESULTS:** Overall, 37 patients with 63 flaps were included in this study. Seventeen patients had CT scan before surgery. Mean age was 50.5 ± 9.64 years. Flap dissection time was significantly shorter in the CT group (150.82 ± 17.866 versus 184.74 ± 25.125 minutes; P < 0.001). Although overall OR time was also shorter in the CT group, this only reached to a statistical significance in bilateral surgeries (575.91 ± 70.10 versus 641.87 ± 79.55; P = 0.038). Hemiabdomen side, selected DIEA row, and number of dissected perforators did not affect the overall dissection time. Complication rates were similar between the 2 groups.

**CONCLUSION:** This prospective, randomized study demonstrates that preoperative CT-angiogram analysis of perforators decreases flap harvest and overall OR time with equivalent postoperative outcomes.

Assessing Complication Profile of Perioperative Versus Prophylactic Postoperative Antibiotics for Prepectoral Tissue Expanders in Immediate Breast Reconstruction: A Pilot Study

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**PURPOSE:** Tissue expanders (TEs) are frequently placed after mastectomy to preserve the native breast skin envelope; however, one notable risk associated with TEs is implant-associated infection. Within plastic surgery literature, there remains debate regarding the appropriate duration of antibiotics for TE-based immediate breast reconstruction (TE-IBR). Based on prospective studies reporting no significant difference between perioperative antibiotics (POA) versus prophylactic postoperative antibiotics (PPA), our plastic surgery division transitioned from PPA until surgical drain removal to POA alone for patients after TE-IBR. This study evaluated POA effectiveness compared to PPA with particular interest in postoperative complications at 30 and 90 days.

**METHODS:** A retrospective chart review was undertaken to analyze patients 18 years of age or older undergoing prepectoral TE-IBR at a single, large-volume institution by 5 oncologic breast surgeons and 5 plastic surgeons. All patients who met inclusion criteria over a 6-month total time period (February to August 2019) were evaluated. Three months of which included the pilot cohort with POA alone and the preceding 3 months when patients received PPA until surgical drain removal to POA alone for patients after TE-IBR. This study evaluated POA effectiveness compared to PPA with particular interest in postoperative complications at 30 and 90 days.

**RESULTS:** Forty patients underwent immediate, prepectoral TE-IBR for total placement of 60 TEs when considering bilateral cases. Twelve patients (16 TE) received POA and 28 patients (44 TE) received PPA. Eight (66.6%) POA patients developed complications of any type within 30 days, compared with 8 (28.6%) PPA patients (P = 0.04). These 30-day complications included surgical site infection (SSI) (25% POA versus 0% PPA), flap skin necrosis with implant exposure (8.3% POA versus 0% PPA), seroma requiring aspiration (25% POA versus 25% PPA), and superficial wound dehiscence (8.3% POA versus 3.6% PPA). In reviewing the 90-day complications, the
POA group did not have a higher complication profile \((P = 0.17)\). Of the 5 POA patients who experienced an SSI postoperatively, all received additional antibiotics. Ultimately, 33.3% of POA patients required TE explant compared with 3.6% explant rate in the PPA group \((P = 0.02)\). There was no difference in number of emergency department visits \((P = 1.00)\) or unplanned hospital admissions \((P = 0.07)\).

CONCLUSIONS: During a trial period of perioperative-only antibiotics, we noticed an increase in SSIs in patients undergoing immediate prepectoral TE-IBR compared with patients who received antibiotic prophylaxis until drain removal. The patients in the POA group required additional antibiotic prescriptions and underwent increased explant rates. The data suggests that immediate TE placement into a prepectoral tissue plane may have a different risk profile than defined in prior studies which involved submuscular or dual plane expander placement. Future work at our institution will focus on conducting a prospective randomized control trial to further analyze whether prophylactic antibiotics until drain removal is needed in this patient population.

REFERENCE:
1. Phillips BT, Fourman MS, Bishawi M, et al. Are prophylactic postoperative antibiotics necessary for immediate breast reconstruction? Results of a prospective randomized clinical trial. J Am Coll Surg. 2013;22:1116–1124.

A Critical Appraisal of Late Complications of Prepectoral Versus Subpectoral Breast Reconstruction Following Nipple-Sparing Mastectomy

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**PURPOSE:** Nipple-sparing mastectomy (NSM) offers improved aesthetics without compromising oncologic safety. Subpectoral (SP) breast reconstruction has long been standard practice, though prepectoral (PP) reconstruction has recently resurged in popularity. Due to this recent paradigm shift, studies comparing long-term outcomes by reconstructive plane are lacking.

**METHODS:** A retrospective review was conducted on consecutive NSMs with implant-based reconstruction in either the PP or SP plane from 2014 to 2018. Patient demographics and operative details were collected to evaluate primary outcomes of prosthetic failure (PF) and unplanned reoperations by reconstructive plane. Secondary outcomes included animation deformity, capsular contracture, rippling, plane change, and minor revisions including fat grafting. Univariate and multivariate analyses were performed to assess outcomes.

**RESULTS:** Four hundred five NSMs were performed on 228 women (SP = 202, PP = 203) with mean follow-up of 2.1 (1.1) years. PP reconstructions were more often direct-to-implant compared with SP (73.9% versus 33.2%; \(P < 0.001\)). PP reconstruction demonstrated significantly reduced PF (odds ratio, 0.37; 95% CI, 0.18–0.76) and unplanned reoperations (0.58, 0.34–0.98) compared with SP. PP patients experienced decreased animation deformity (AD) overall (19.7% versus 0.0%; \(P < 0.001\)), with plane changes seen in 10.6% of SP reconstructions for AD correction. PP patients experienced an increase in rippling (15.3% versus 6.1%; \(P = 0.003\)) without a significant increase in fat grafting (SP = 11.6% versus PP = 12.3%; \(P = 0.829\)).

**CONCLUSIONS:** This single-institution experience compares late complications of PP and SP implant-based reconstruction following NSM. PP reconstruction is associated with reduced rates of PF and unplanned reoperations and more readily affords direct-to-implant reconstruction and reduces AD at the expense of rippling.

Impact of Preoperative Immunonutrition on Outcomes of Immediate Breast Reconstruction

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