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Mepilex Ag versus Xeroform as Dressings for Split-Thickness Skin Graft Donor Sites

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PURPOSE: Split-thickness skin grafting (STSG) is one of the most common procedures in reconstructive and burn surgery; the optimal management of the donor site remains a source of debate and inconsistency in the care of these patients. The optimal donor site dressing is one that minimizes pain and the risk of infection. In this study, we aim to compare postoperative pain and the rate of donor site infection between bismuth tribromophenate gauze (Xeroform) dressings and silver-impregnated foam dressings (Mepilex Ag, Mölylnke, Gothenburg, Sweden) for STSG donor sites in burn patients.

METHODS: We performed retrospective chart review of 212 patients with burn injuries treated in our burn unit in 2017. Patients who underwent debridement and autografting with STSG were classified by donor site dressing type (either Xeroform or Mepilex Ag). Infections were documented by clinical assessment and managed appropriately when noted. Maximum pain scores on postoperative days 1, 3, and 5 were recorded, using a patient-reported 10-point scale (pain scores for children under age 7 were recorded using FLACC scores). Univariate statistics were used to compare groups, and Barnard's unconditional test was performed to compare the incidence of donor site infection between the groups.

RESULTS: There were eighty-six cases of autografting with STSG. Of these, 37 had donor sites dressed with Mepilex Ag (43%), while 49 had donor sites dressed with Xeroform (57%). No infections were observed in donor sites dressed with Mepilex Ag (0%); five patients with Xeroform on their donor sites developed donor site infection (10%, p=0.03). There were no significant differences in maximum pain scores between Mepilex Ag and Xeroform groups on postoperative days 1, 3, and 5 (7.00 vs. 6.76, p=0.69; 6.30 vs. 6.15, p=0.81; and 5.71 vs. 5.81, p=0.89). Patients in the Mepilex Ag and Xeroform groups were similar in age, gender and length of stay (LOS). The Mepilex Ag group had somewhat lower percent total body surface area (TBSA) burned (6.8% vs. 10.4%, p=0.03). There were no significant differences in age, gender, LOS, percent TBSA, or pain scores in those who had infections and those who did not.

CONCLUSIONS: Donor sites dressed with Mepilex Ag have a lower rate of donor site infection relative to those dressed with Xeroform in burn patients undergoing autografting with split-thickness skin grafts, though maximum pain scores on postoperative days 1, 3, and 5 remain similar.

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Developing an Evidence-Based Approach to Using Acellular Dermal Matrix in Expander-Implant-based Breast Reconstruction

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PURPOSE: Although acellular dermal matrix (ADM) is widely used in expander-implant (E/I) breast reconstructions, previous analyses have been unable to demonstrate improvements in patient-reported outcomes (PROs) with this approach over non-ADM E/I procedures. Attempting to develop a more selective, evidence-based approach to the use of ADM, we sought to identify patient subgroups in which ADM improved outcomes for E/I reconstruction.

METHODS: The Mastectomy Reconstruction Outcomes Consortium (MROC) Study prospectively evaluated immediate E/I reconstructions at 11 centers from 2012 to 2015. Complications (total and major), and PROs (satisfaction, physical, psychosocial and sexual well-being) were assessed two years postoperatively using medical records and the BREAST-Q, respectively. Using mixed-models accounting for centers and with interaction terms, we analyzed for differential ADM effects across various clinical

subgroups, including age categories, BMI categories, radiation timing, and chemotherapy.

RESULTS: Expander/implant reconstruction was performed in 1451 patients, 738 with and 713 without ADM. Major complication risk was higher in ADM users vs. non-users (22.9% vs. 16.4%, p=0.04). Major complication risks with ADM increased with higher BMI (p=0.02; BMI=30, OR=1.54; BMI=35, OR=2.07). No significant ADM effects were observed on breast satisfaction, psychosocial, sexual and physical well-being within any subgroups.

CONCLUSION: In immediate Expander/Implant reconstruction, ADM was associated with greater risk of major complications, particularly in high-BMI patients. We were unable to identify any patient subgroups where ADM use was associated with significant improvements in patient-reported outcomes. Given these findings and the attendant costs of ADM, a more critical approach to the use of ADM may be warranted.

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The Effect of Padded Adhesive Dressings and Body Position on Sacral Interface Pressure

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PURPOSE: Padded adhesive bandages have been increasingly used in the operating room and in the inpatient setting to reduce the incidence of pressure ulcers. However, whether these bandages truly decrease interface pressure at the sacrum is not known. It was hypothesized that there would be a reduction in sacral peak interface pressure for a supine position, further reduced in 30 degree and seated positions, respectively.

METHODS: 40 healthy adult volunteers of both sexes were recruited to this study. Study participants sat on a pressure-sensing mat (CONFORMat™ Tekscan, Boston, USA) in 3 positions for 30 seconds each: 1) Sitting upright with legs off the floor; 2) Supine; 3) Supine with the back resting on a 30 degree wedge. For each position, each participant first wore only thin cotton pants. The measurement was then repeated with a padded adhesive bandage (Mepilex® Gentle Border, Mölnlycke Health Care, Norcross, USA) on the sacrum under the pants. Age, sex, and body mass index (BMI) were collected for all participants. Peak pressures were compared across positions using linear mixed effects modeling. As fixed effects, Mepilex and position were included in the model. Participants, BMI, sex, and age were entered as random effects. Demographic data was analyzed using descriptive statistics. Normality was checked using Wilks-Shapiro testing. P values were obtained by likelihood ratio testing of linear mixed effects models sequentially incorporating factors of interest, with significance at $p = 0.05$.

RESULTS: 20 females and 20 males participated with age 29.6 +/- 9.3 (range 18–60) and BMI 23.4 +/- 3.2 (range 17.9–38.1). After controlling for by-subject variation, age, and sex, BMI did not further account for variability in peak sacral pressure ($p = 0.22$). Body position accounted for a significant amount of variability among participants when added to the model ($p < 0.01$). The presence of a padded adhesive dressing itself did not account for further variability after controlling for by-subjects variation, sex, age, BMI, and body ($p = 0.17$); sacral peak pressure was equivalent between the bare sacrum (mean +/- standard deviation; 229.8 +/- 127.7 mmHg) and padded adhesive dressing conditions (247.8 +/- 147.3 mmHg). Finally, there was no significant interaction between BMI and body position when this was added to the model ($p = 0.11$).

CONCLUSION: This study demonstrated that a padded adhesive bandage did not provide a reduction in interface pressure in any position over the sacrum. Pressure on the sacrum was highest in the supine position and this was not influenced by BMI. If padded bandages provide clinically significant reduction in the incidence of pressure ulcers, then it is not simply through the reduction of interface pressure. Other potential causative factors of hospital acquired pressure ulcers and should be investigated further.