Phantom Pain (d=-1.15; p=0.005), and MPQ (d=-1.13; p=0.064).

CONCLUSION: This clinical trial supports the use of RPNI surgery to treat and prevent postamputation pain. Prophylactic RPNI surgery has significant effects in improving postamputation pain. RPNI surgery also showed improved anxiety and pain in patients with existing postamputation pain.

55. PREDICTING RISK FOR FLAP LOSS AFTER AUTOLOGOUS BREAST RECONSTRUCTION AMONG 2355 PATIENTS

Marten N. Basta, MD, Arturo J. Rios-Diaz, MD, Jessica R. Cunning, MD, MBA, Cutler B. Whitely, BS, Harrison D. Davis, BS, Robyn B. Broach, PhD, Suhail K. Kanchwala, MD, Stephen J. Kovach, III, MD, Joshua Fosnot, MD, Liza C. Wu, MD, Joseph M. Serletti, MD, FACS

University of Pennsylvania Health System, Philadelphia, PA, USA.

PURPOSE: Autologous breast reconstruction (ABR) offers high patient satisfaction with a low risk-profile. Improved outcomes have led to a decreased tolerance for flap loss complications over time. This study provides an individualized risk prediction tool for flap loss after ABR.

METHODS: IRB-approved, institutional review of patients undergoing ABR between 2010-2019 was conducted. Baseline characteristics, perioperative data, and postoperative flap loss were recorded. Multivariable regression generated a predictive risk model for flap loss.

RESULTS: 2,355 patients received ABR. Patients averaged 51.6 +/- 9.8 years with BMI of 28.9 +/- 6.0 kg/m^2. 33% had prior radiation and 45% neoadjuvant chemotherapy. 74% were immediate reconstructions, and 58% were bilateral. Flap choice included msTRAM (69%), DIEP (23%), SIEA (4%), thigh-based/other (4%).

73 flap losses (Complete: 51 (2.2%), Partial: 22 (0.9%)) occurred. Predictors included: age>75 years (OR=3.0, p=0.047), SIEA or non-abdominal-based flaps (OR=2.7-3.0, p<0.05), immediate reconstruction (OR=2.7, p=0.01), smoking history (OR=2.3, p=0.001). msTRAMs were protective against flap loss (OR=0.54, p=0.042). Flap loss was stratified from Low (1.4%) to Extreme Risk (20%) with high accuracy (C-statistic=0.76).

CONCLUSION: This risk-stratification tool quantifies patient-specific flap loss risk after ABR. In addition to managing patient expectations, it may aid in surgical decision-making and postoperative resource allocation.

56. BREAKING BARRIERS TO BREAST RECONSTRUCTION AMONG SOCIOECONOMICALLY DISADVANTAGED BREAST CANCER PATIENTS: LESSONS LEARNED AT A LARGE SAFETY-NET HOSPITAL

Anna Meade, MD[1], Samantha Cummins, MD[1], Jordyn T. Farewell, MS[1], Sofia Duque, BA[2], Sydney Mulqueen, BS[1], Ashleigh Chuah, BS[1], Andrew Y. Zhang, MD[1]

[1]University of Texas Southwestern, Dallas, TX, USA, [2]Sidney Kimmel Medical College at Thomas Jefferson University, Philadelphia, PA, USA.

PURPOSE: Socioeconomic disparities remain widely prevalent among those who undergo breast reconstruction. The purpose of this study was to examine mastectomy and reconstruction modalities at a large safety-net hospital and determine the impact of socioeconomic factors on breast reconstruction enrollment, choice, and completion.

METHODS: A retrospective chart review of patients who underwent mastectomies at a large safety-net hospital from 2016 to 2019 was completed. Surgical, medical, and demographic data were compared across varying socioeconomic factors. Eligibility for elective breast reconstruction at our institution includes a pre-operative hemoglobin A1c level less than 7%, body mass index less than 40 kg/m^2, and non-smoking status for one month prior to surgery.

RESULTS: Of the 645 patients included in this study, more patients of a racial minority had government-based insurance than Caucasian patients (89% vs. 82%; p=0.01). Those

with government-based insurance had higher average hemoglobin A1c values (6.26 vs. 6.0; p=0.03), proportion of ASA scores greater than III (46% vs. 40%; p=0.01), and smokers (23% vs. 8%; p=0.02) than those with private insurance. Patients with government-based insurance underwent stage I breast reconstruction at rates lower than those with private insurance (57% vs. 69%; p=0.01).

CONCLUSION: Significantly higher number of socioeconomically disadvantaged patients failed to meet preoperative clearance criteria for breast reconstruction due to obesity, diabetes, smoking, and poor overall health. Concerted effort through multidisciplinary teams is needed to maximize eligibility of socioeconomically disadvantaged breast cancer patients for reconstruction.

57. A DECADE OF NIPPLE-SPARING MASTECTOMY AND IMMEDIATE IMPLANT-BASED BREAST RECONSTRUCTION: LESSONS LEARNED

Amy S. Colwell, MD, Roberto Lorenzi Mendez, MD, Alex Lin, DO, Justin McCarty, MD, Eric Liao, MD, Alexandra Webster, BS, Barbara L. Smith, MD, William G. Austen, Jr., MD

Massachusetts General Hospital, Boston, MA, USA.

PURPOSE: Nipple-sparing mastectomy is commonly performed for breast cancer treatment or prevention. Prior outcomes research is limited by small sample size and conflicting data. We present one of the largest series in the literature for analysis.

METHODS: Retrospective single institution review was conducted from 2007-2018.

RESULTS: Our query found 2260 implant-based breast reconstructions after nipple-sparing mastectomy including 1508 direct-to-implant and 752 tissue expander-implant reconstructions. The average age was 47 and body mass index 24. The direct-to-implant cohort had more radiotherapy (17.6% vs. 13.2%, p=0.007) and chemotherapy (33.1% vs. 25.8%, p<0.001) while the tissue expander-implant group had more smokers (9.0% vs. 3.3%, p<0.001). Overall complications and nipple necrosis were higher in tissue expander reconstructions compared to direct to implant reconstruction (p<0.02 for each). Multivariable regression analysis revealed preoperative radiotherapy (OR 2.99, 95% C.I. 1.827-4.892, p<0.001), active smoking (OR 1.86, 95% C.I. 1.132-3.084), and periareolar incision (OR 3.528, 95% C.I. 1.399-8.893, p<0.001) to be the strongest predictors of overall complications and predictors of nipple necrosis (p<0.05). Tissue expander reconstruction had a significantly higher odds ratio for complications compared to direct-to-implant (OR 1.488, 95% C.I. 1.106-2.002, p=0.009). There was no difference in overall complications between reconstruction with acellular dermal matrix/ mesh compared to total or partial muscle coverage without ADM/mesh (OR 0.866, 95% C.I. 0.648-1.157, p=0.332).

CONCLUSION: In this large series, radiation, smoking, and incision choice strongly predicted overall complications and nipple necrosis. Direct-to-implant reconstruction and reconstruction with acellular dermal matrix or mesh were not associated with an elevated risk of complications.

58. COMPARISON OF RADIATION PROTOCOLS FOR PRE-PECTORAL VS. SUB-PECTORAL IMPLANT-BASED BREAST RECONSTRUCTION

Libby R. Copeland-Halperin, MD, Yulia Lyatskaya, PhD, Jennifer R. Bellon, MD, Matthew J. Carty, MD, Jessica Erdmann-Sager, MD

The Brigham and Women's Hospital, Boston, MA, USA.

PURPOSE: In the United States, approximately one third of patients who undergo mastectomy will undergo post-mastectomy radiation therapy (PMRT). The presence of breast reconstruction may alter how PMRT is delivered. Pre-pectoral implant-based reconstruction has been widely adopted, but there is no data on the impact of pre-pectoral implant-based reconstruction on PMRT planning or delivery. Rather, prior studies have focused on complication rates and aesthetic outcomes. This study aims to examine whether there is a difference in radiation administration among patients undergoing pre-pectoral and sub-pectoral implant-based reconstruction.

METHODS: Radiation mapping protocols for 50 patients who received either immediate sub-pectoral or pre-pectoral implant-based reconstruction followed by PMRT at a large