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Postoperative Tachycardia in Free Flap Breast Reconstruction: Is It a Reason to Worry?



Hao Huang, BS, David M Otterburn, MD

NewYork-Presbyterian/Weill Cornell Medicine, New York, NY

INTRODUCTION: Despite intensive intraoperative surveillance and management, many patients who undergo free flap breast reconstruction develop postoperative tachycardia. The purpose of this study is to determine the predictors, workup, and complications associated with tachycardia in order to begin to make recommendations for management.

METHODS: Patients who underwent deep inferior epigastric perforator (DIEP) flap breast reconstruction from 2011-2020 were included. Charts were retrospectively reviewed for patient characteristics, workup of tachycardia, and adverse events. All patients found to be tachycardic (HR \geq 100 beats/minute for at least 12 hours following surgery) were compared to those who were not tachycardic.

RESULTS: 249 patients were included in this study. 61 patients (24.9%) developed tachycardia postoperatively. Univariate analysis demonstrated a significantly higher BMI, heavier flaps, greater anesthesia time, higher rate of diabetes, higher preoperative WBC count, and higher preoperative HR in tachycardic patients ($p < 0.05$). Multivariate regression revealed that preoperative HR and flap weight were the most significant predictors ($p < 0.05$). Tachycardic patients were more likely to undergo EKG, duplex ultrasound, CTPE protocol, and specialty consultations ($p < 0.05$), but they were not at higher risk for complications in the immediate postoperative period. However, they had a higher incidence of delayed abdominal donor-site healing.

CONCLUSION: A significant number of DIEP flap patients can be expected to develop persistent tachycardia postoperatively. While tachycardic patients tend to receive additional evaluation, isolated tachycardia should be considered a relatively benign finding that does not warrant extensive workup or prolonged hospitalization. Predicting which patients may develop postoperative tachycardia allows us to avoid these interventions.

Predicting Microvascular Thrombotic Complications with Thromboelastography (teg) with Platelet Mapping: A Preliminary Investigation



Jiaxi Chen, MD, Patrick Chin, BS, Oksana Volod, MD, Dhivya Srinivasa, MD

Cedars-Sinai Medical Center, Los Angeles, CA

INTRODUCTION: The technical advances in free-tissue transfer (FTT) have significantly decreased the incidences of complications, yet anastomotic thromboses persist as the leading cause of flap failure. Thromboelastography (TEG) analyzes the viscoelastic properties of blood providing a comprehensive analysis of a patient's

coagulation potential and postoperative aspirin efficacy. This study investigates the utility of TEG in perioperative FTT patients.

METHODS: Consecutive patients at our institution underwent FTT and TEG analysis pre- and postoperatively. Primary endpoints included (1) TEG parameters on factor and platelet contribution to clot formation and (2) antiplatelet efficacy with aspirin in postoperative period.

RESULTS: 27 patients underwent FTT, 4 patients developed anastomotic thrombosis. 4 had intraoperative revision of the affected anastomosis, and 1 developed thrombosis on postoperative day 2 necessitating takeback for anastomotic revision. The thrombotic patients had statistically significant preoperative TEG parameters: (1) decreased SP time ($p < 0.04$), (2) decreased R time ($p < 0.04$), (3) decreased K value ($p < 0.05$), and (4) decreased LY30 ($p < 0.001$) when compared to control cohort.

CONCLUSION: We find (1) the implementation of TEG is feasible in patients undergoing FTT, (2) TEG can predict changes in blood coagulation in patients undergoing FTT, and (3) TEG with platelet mapping can predict changes in platelet inhibition in patients undergoing FTT.

Psychosocial Functioning of Children with Craniofacial Anomalies Before and During Covid-19



Kelly X Huang, HSD, Michelle K Oberoi, BS, BA, Vivian J Hu, BS, Rachel M Caprini, BS, Sri Harshini Malapati, BS, Sarah Mirzaie, BS, Justine C Lee, MD, PhD, FACS

Division of Plastic and Reconstructive Surgery, University of California, Los Angeles

David Geffen School of Medicine, Los Angeles, CA

University of California, Riverside School of Medicine, Riverside, CA

INTRODUCTION: Our group previously identified age as a predictor of psychosocial functioning for children with congenital craniofacial anomalies. However, the change in social dynamics during the COVID-19 pandemic may exert a unique influence on development that warrants further investigation. The current study aims to evaluate the potential psychosocial effects of COVID-19 in children with craniofacial anomalies.

METHODS: Twenty-six craniofacial patients (age 8-17 years before COVID-19, 38.5% male) were prospectively evaluated at the University of California, Los Angeles using the Pediatric Patient-Reported Outcomes Measurement Information System to assess anger, anxiety, peer relationships, depressive symptoms, and global health. Patients were surveyed in the preceding year and during COVID-19, which we defined as after March 1, 2020. Paired samples t-tests and linear regressions were performed.

RESULTS: Children with craniofacial anomalies reported elevated depressive symptoms during COVID-19 (before 46.5 ± 10.5 vs.

during 50.4 ± 9.6 ; $p < 0.05$). In order to identify key predictors, we constructed a linear regression model that incorporated age, time of survey, private or public insurance as an indication of socioeconomic status, and global health as a measure of baseline psychosocial functioning. This model accounted for 62.1% of the variance in depressive symptom scores ($F_{5,37} = 14.8$; $p < 0.001$). In particular, scores obtained during COVID-19 ($\beta = 0.3$; $p < 0.01$) and global health ($\beta = -0.7$; $p < 0.001$) were found to be significant predictors for depressive symptoms.

CONCLUSION: This study evaluates the immediate COVID-19 effects in children with craniofacial anomalies that may guide post-pandemic clinical care. Our results demonstrate that an increase in depressive symptoms occurred during COVID-19 that was unrelated to age-dependent changes.

Transdermal Deferoxamine in a Porcine Model Is a Safe Treatment to Improve Elasticity Secondary to Radiation-induced Fibrosis

Darren B Abbas, MD, Evan J Fahy, MB Bch BAO, MCh, Christopher V Lavin, MS, Michelle Griffin, MBChB, PhD, Nestor M Diaz DeLeon, BS, Megan E King, BS, Geoffrey C Gurtner, MD, FACS, Michael T Longaker, MD, MBA, FACS, Derrick C Wan, MD, FACS
Stanford University School of Medicine, Stanford, CA

INTRODUCTION: Radiation therapy has devastating side-effects to surrounding soft tissue. We have previously demonstrated the efficacy of a transdermal drug delivery system (TDDS) to deliver deferoxamine (DFO) cutaneously to irradiated porcine skin (A), and we now aim to demonstrate the safety and efficacy of DFO treatment.

METHODS: Six red Duroc pigs' flanks were irradiated with a single dose of 30 Gy. Pigs were divided into 3 different treatment conditions: 0.5mg, 1mg, and 2mg DFO TDDS patch. The irradiated regions were divided into 5 distinct conditions: prophylactic treatment, continuous treatment, acute post-radiation treatment, chronic post-radiation treatment, and a control site (B). Blood samples from each pig were collected weekly and analysed with liquid chromatography-mass spectrometry (LC-MS). Skin elasticity was measured weekly using a Cutometer Dual MPA-580®.

RESULTS: LC-MS analysis of blood samples from all pigs did not peak at any level higher compared to negative control samples (C). The 1mg and 2mg continuous patch sites demonstrated significant

improvement with elasticity compared to control skin. The 0.5mg patch site showed moderate improvement in skin elasticity.

CONCLUSION: The 1mg and 2mg DFO TDDS patches mitigated fibrotic effects of radiation-induced skin damage without any harmful systemic effects. These findings could help revolutionize the treatment of radiation-induced skin fibrosis.

Unrestricted Access to the Intravenous Tylenol Is Associated with Shorter Length of Stay in the Retrospective Cohort of Patients Treated for the Maxillofacial Trauma in a Level 1 Trauma Center

Mindaugas Pranevicius, MD, Afshin Parsikia, MD, Howard Stupak, MD, Jody M Kaban, MD, FACS, Benn Lieberman, DDS, Thomas Whitmer, DDS, Denise Sullivan, NP, Kari Cleland, DDS, John McNelis, MD, FACS, FCCM, Leonard Golden, MD
Jacobi, Bronx, NY
Einstein Healthcare Network, Philadelphia, PA

INTRODUCTION: We observed decreased length of stay in thoracic surgery patients treated with non-opioid multimodal analgesia (NOMA). Whether unrestricted access to the intravenous tylenol (a non-opioid analgesic) which was part of NOMA, affects hospital course and length of stay (LOS) of the maxillofacial trauma patients, who are less likely to take oral tylenol is unknown.

METHODS: After IRB approval data from the trauma registry of a Level 1 trauma Center was analyzed from 2009 to 2018 selecting 574 patients who were admitted to the trauma surgery and required surgical treatment for the maxillofacial trauma. The time frame included unrestricted tylenol access period (2011-2014), as well as period before its introduction and after usage restriction due to the financial constraints in 2014. We excluded patients, whose LOS exceeded 95th percentile (10.4 days), leaving 212 patients in the tylenol group, 102 in pre 2011 and 173 in post 2014.

RESULTS: There was no significant difference in the demographics (sex- 85% male, age- mean 33.4, SD 14.3) and injury severity score (Median ISS 4 (IQR 1-5)) between the groups. Mean LOS in IV tylenol group was 3.8, 95% CI (3.6-4.1) and in non-tylenol 4.3 (4.1-4.6). Log rank (Mantel-Cox) $P = 0.018$.

CONCLUSION: In patients with maxillofacial trauma unrestricted access to the IV tylenol was associated with decreased length of stay. This finding supports the practice of more liberal use of intravenous tylenol in surgical patients who can not take oral medications.

