P#23

Abstract Title:	**Acute Burn Care May Reduce Future Vascularized Composite Allotransplantation Candidacy: Anti-HLA Immune Sensitization Effects of Allograft and Blood Transfusion**
Author and Co-authors:	David H. Tassin, MD; Rodney K. Chan, MD United States Army Institute of Surgical Research, Burn Center, Ft. Sam Houston, TX
Objective:	Upon completion of the lecture, attendees should be better prepared to: ▪ Understand that skin allograft application and blood transfusion during acute burn care expose patients to donor antigens. ▪ Recognize that skin allograft induces a greater immune cross-sensitization and that alternative dressings are available.
Abstract:	**Introduction:** Owing to occupational exposures, recreational hazards, and several other factors, the hands and face are disproportionately affected by thermal injuries nationwide. These anatomic regions also create unique challenges in rehabilitation and reconstructive surgery, often leading to long-term functional and cosmetic deficiencies. For especially severe cases, vascularized composite allotransplantation (VCA) of the hand or face has emerged as a viable reconstructive modality, but donor-recipient matching is necessary and lifelong immunosuppression a significant concern. Optimizing donor-recipient matching is therefore necessary. Early data, however, suggest burn patients exhibit unusually high anti-HLA sensitization, a finding attributed to skin allograft usage and blood transfusion during acute burn care. This widespread anti-HLA immune sensitization limits future VCA options for the patients most in need of these grafts. This study aims to define the degree of immune cross-sensitization attributable to allograft application as well as blood transfusion individually, hypothesizing that allograft application causes a high degree of anti-HLA sensitization in and of itself. **Methods**: A cross-sectional population study was conducted on patients discharged from the US Army Institute of Surgical Research Burn Center. Patients with >30% TBSA burns were included and grouped into those who received allograft as well as blood transfusion and those who received blood alone. At this institution, cryopreserved allograft is used. Demographic matched control groups included a cohort of trauma patients who received blood transfusions as well as a cohort of uninjured healthy individuals. Women with prior pregnancy were excluded, and subjects were at least eighteen-years-old. Anti-HLA antibody screening and follow-up Panel of Reactive Antibody testing was performed from a single outpatient blood draw to quantify the extent of anti-HLA sensitization in each subject. Electronic blood bank records were reviewed to quantify the total number of blood products transfused to each individual, noting also those trauma patients who received whole blood during their

	initial resuscitation. **Results**: Compared to burn patients who never received allograft during their acute critical care recovery, burn patients who received cryopreserved allograft exhibit higher anti-HLA sensitization as evidenced by higher cPRA scores. Burn patients who received only blood during their acute care exhibited minimal anti-HLA sensitization. Both groups received roughly equivalent quantities of blood products overall. **Discussion**: Severely burned patients often are uniquely suited to benefit from VCA, but these very same patients are more likely to receive allograft during their acute care. Early data from other centers suggest significant cross-sensitization is common, but these studies cannot distinguish the effects of allograft from blood transfusion alone. In this cross-sectional study, the effect of allograft and blood product use on long-term anti-HLA sensitization is evaluated individually in separate groups of burn patients. Allograft usage in early wound coverage leads to anti-HLA sensitization against numerous antigens common in the population, making future recipient-donor matching a troublesome endeavor. These results may suggest alternative temporary wound coverage products, such as porcine xenograft, are more appropriate in the acute setting to avoid this sensitization. **References and Resources:** PMID: 25683513 . Duhamel et al, May 2015, Anti-HLA sensitization in extensively burned patients: extent, associated factors, and reduction in potential access to vascularized composite allotransplantation.
Disclosure:	David H. Tassin – No Relevant Financial Relationships to Disclose Rodney K. Chan – No Relevant Financial Relationships to Disclose