Heat of the Moment: Managing Burn Trauma in Pregnancy Briel Lee, MD; Amy Penwarden, MD University of North Carolina



Low incidence but **high mortality**; overall mortality for both mother and fetus ranges depending on percent burn area.

General Principles:

- Maternal + fetal rescue
 - Fetal outcomes depend on extent of maternal burn
- 50% fetal mortality with >25% TBSA burns Nearly 100% fetal mortality with >50% TBSA burns
- Multidisciplinary team: OB, burn surgery, critical care, anesthesia • Obstetric management, early delivery (delivery if >36w and 50% TBSA burns)

Specific Considerations:

- Fluid resuscitation Parkland formula Medications contraindicated in pregnancy and burns
- Infection Prevention Antimicrobial dressings, serial debridement + skin grafting
- Nutritional Support
- Fetal monitoring
- Thromboprophylaxis

*Karimi H et al. Pregnancy and burns: guidelines for safe management. Burns, 46(7): 1620-31, 2020. Smith BK et al. Burns and pregnancy. Clin Perinatol. 1983 Jun; 10(2): 383-98.







•25yo G4P3013 at 38w5d sustained **50% TBSA 2nd degree flame burns** to bilateral upper and lower extremities, face, and abdomen •Cervical exam: 4cm/50% effaced/-2 station on presentation. She was intubated shortly after arrival due to respiratory compromise

•Initial plan for induction on L&D (given 3 prior vaginal deliveries) with burn ICU nurse present for wound and ICU-level care •Subtle late decelerations followed by prolonged late deceleration led decision for cesarean delivery



•The patient remained intubated and underwent general anesthesia for her primary cesarean with previously placed arterial and central lines with TIVA using fentanyl and propofol infusions

• Uterine atony required oxytoxin, methergine, tranexamic acid and calcium administration • EBL was 600mL, but additional resuscitation was required due to her burns and anemia o 2L crystalloid, 500mL of 5% albumin, 2 units pack red blood cells, 1 unit fresh frozen plasma, and 1 unit of cryoprecipitate

•She recovered in the **burn ICU** post-operatively, extubated on POD 3. Her child was discharged from the NICU shortly after this. •The patient underwent serial debridements and skin grafts with ongoing wound care until appropriate for discharge on hospital day 20.





Teaching Points: Burn Trauma in Pregnancy

Rare, high acuity cases

- Shock, hypoxia and sepsis can lead to maternal and fetal mortality
- Where in your hospital is the best place to care for these patients?
- What resources do they need?

Treatment:

- Aggressive fluid resuscitation 4mL/kg/% TBSA over first 24 hours, monitor electrolytes
- Delivery timing early delivery if >36w
- Level of fetal monitoring based on GA and maternal instability
- Infection prevention via extensive wound care
- Airway management consider carbon monoxide poisoning can also lead to fetal hypoxia
- Possible need for multiple anesthetics for wound debridements and skin grafting
- Thrombopropylaxis may have implications for neuraxial anesthesia



Open Anesthesia Virtual Grand Rounds - Trauma in Pregnancy. (2016). Retrieved March 16, 2025, from <u>https://vimeo.com/showcase/2395257/video/152736300</u>.



