Second-Degree Burn Care with a Lactic Acid Based Biodegradable Skin Substitute in 229 Pediatric and Adult Patients

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OBJECTIVES

- Evaluate 229 patient cases
- Discuss outcome measures for second degree burns
- Understand different treatment options for second degree burns
- Compare outcomes after different treatments for second degree burns
- Evaluate Cost of different treatment options for second degree burns

STUDY DESIGN

- Retrospective chart review
- 2nd degree wounds (2A and 2B)
- Patient received wound debridement under sedation/ anesthesia and absorbable synthetic lactic acid based membrane was placed (= standard care)
- Study period: 9/1/2013 – 12/31/2016
- IRB approval was obtained

PROCEDURE

- Dermabrasion (in OR) or rough debridement (under sedation) of wound
- Rinse with sterile saline
- Dab dry
- Apply (absorbable lactic acid) membrane
- Cover with Vaseline gauze
- Cover with bridal veil (Dermanet®, N-terface® …)

RESULTS - Demographics

- 229 patients, 474 applications, for Burns
- 88 female/ 141 male
- 138 pediatric
- Average age 20 years (9 weeks to 73 years)
- Average Burn size 8.6 %TBSA (1-60.5)
- 220x2nd degree, 5x3rd degree, 4x indeterminate depth
- Average time to healing - 14.2 days
  - Pediatric: 12.4 days
  - Healing time determination for outpatients prolonged because of link to appt.
  - Average pain level throughout - 1.7/10
  - Areas of infection - 3.5%
  - Area of progression to FT 5/229 - 2.24%
  - Some hypertrophic scarring - 12%
    - 10.1% pediatric, 14.3% adult
    - 4.3% of BC applications vs 15.2% OR applications, probably because of deeper burns being applied in the OR

COLLAGEN MEMBRANE WITH CELLS COST 3% TBSA

- Sedation Debridement - 2500$ + 50$ x5
- Membrane - 900$ x5
- Silver and gauze outer dressing - 60$ x5
- Change outer dressing every 3 days
- 1 Nursing time average 5 hours - 400$
- Healing in 15 days - 4100$

OINTMENT DRESSINGS 3% TBSA COST

- Sedation Debridement - 2500$ + 50$ x5
- Ointment 50$/3000$(3 days per tube)
- Vaseline and gauze outer dressing - 20$ x5
- Change outer dressing every 3 days
- 1 Nursing time average 5 hours - 400$
- Healing in 15 days - 3250$/6200$

LACTIC ACID ABSORBABLE MEMBRANE 3% TBSA COST

- Sedation Debridement - 2500$ + 50$ x5
- Membrane - 300$ x5
- Vaseline/-Gauze outer dressing - 20$ x5
- Change outer dressing every 3 days
- 1 Nursing time average 1 hours - 80$
- Healing in 15 days - 3000$

CONCLUSION

- Lactic Acid membrane is a competitive second degree burn treatment option
- Lactic Acid membrane treatment has a low infection/failure rate when applied onto a vital and clean wound bed
- Lactic Acid membrane coverage decreases the systemic inflammatory response and fluid loss when applied within the first 2 days post burn, especially in children
- Lactic Acid membrane coverage is patient friendly (less pain, less dressing changes)
- Lactic Acid membrane coverage of 2nd degree burn wounds is cost neutral or effective, depending on what other dressing option is used

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