TREATMENT OF HYPERTROPHIC GRANULATION IN BURNS:
REVIEW OF THE LITERATURE

Paul Linneman, RN, Jeff Litt, DO, Carolyn Crumley, DNP
Sinclair School of Nursing, University of Missouri Health Care

INTRODUCTION

• Hypertrophic granulation (HG) is defined as abnormal granulation tissue, raised above the level of surrounding skin.
• HG often occurs with delayed healing, or in areas of graft failure in burns.
• HG impedes wound healing.
• Treatment may vary by practitioner.
  Includes chemical cautery with silver nitrate sticks, topical steroids, and dressing strategies.

STUDY QUESTIONS

1. What modalities to treat HG are published?
2. How much does HG slow epithelialization?
3. How do treatment modalities compare in speeding healing?
4. What is the incidence of HG in burn care?

HG EXAMPLES

Topical steroid
Chemical cautery
595 nm PD laser
Foam dressing
Sharpe excision
Antimicrobials
Pressure dssg

HG TREATMENTS

STUDY FINDINGS

1. Only steroid, laser, & foam dressing studied. Other modalities published w/o data: silver nitrate cautery, compression dssg, avoid occlusive dssg, excision & more.
2. No data comparing epithelialization with HG vs. with normal granulation
3. Median healing 14-45 days, steroid &/or laser. Insufficient data to compare tx
4. 17% incidence of HG in grafted burns, 43% incidence in excised dorsal hands

DISCUSSION POINTS

• HG incidence, impact on healing, and current practice by wound & burn providers needed
• Healing time for untreated HG is needed as baseline to evaluate treatments
• Is treatment effective if average healing time 2-6 weeks

FUTURE RESEARCH NEEDS

• Survey current practice in burn and wound care
• Compare healing of granulation vs. HG
• Compare outcomes with different treatments

LITERATURE FINDINGS

<table>
<thead>
<tr>
<th>Author</th>
<th>Subjects</th>
<th>HG incidence</th>
<th>Treatment</th>
<th>Tx time</th>
<th>Outcome measure</th>
</tr>
</thead>
<tbody>
<tr>
<td>Shalom (steroid)</td>
<td>5 grafts</td>
<td>17%</td>
<td>Steroid (hydrocortisone acetate 2.5% diluted)</td>
<td>4-20 d</td>
<td>HG regress, no regraft, no infection</td>
</tr>
<tr>
<td>Lateo (steroid)</td>
<td>3 wounds</td>
<td>43%</td>
<td>Steroid: clotobesol propionate 0.05% daily</td>
<td>7-14 d</td>
<td>Complete epithelialization</td>
</tr>
<tr>
<td>McShane (steroid)</td>
<td>12 excised hands</td>
<td>0%</td>
<td>Steroid: clotobesol 0.05% or flutecolzone 0.05%</td>
<td>14-60 d</td>
<td>HG resolved</td>
</tr>
<tr>
<td>Wang (steroid/laser)</td>
<td>9 MOHS surgery</td>
<td>10%</td>
<td>Laser + steroid: 595 nm PDl + fluotecolzone 0.05%</td>
<td>7-63 d</td>
<td>“Healed or nearly healed”</td>
</tr>
<tr>
<td>Moody (laser)</td>
<td>4 scalp excisions</td>
<td>20%</td>
<td>Laser: 595 nm PDl</td>
<td>28-63 d</td>
<td>HG resolved</td>
</tr>
<tr>
<td>Harris (foam)</td>
<td>10 chronic &amp; acute wounds</td>
<td>2%</td>
<td>Foam dressing: 3x/week</td>
<td>4 d</td>
<td>Decreased wound size 67%, HG height 89%</td>
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<tr>
<td>Johnson (steroid)</td>
<td>25 chronic &amp; acute wounds</td>
<td>15%</td>
<td>Steroid tape vs foam, silver foam, silver alginante</td>
<td>7 d</td>
<td>HG resolution, more quickly with steroid tape</td>
</tr>
<tr>
<td>Jewell (not-stated)</td>
<td>9 grafted burns</td>
<td>43%</td>
<td>Not-stated</td>
<td>38 d mean</td>
<td>Complete healing (non HG healed in mean 26 d), p=0.02</td>
</tr>
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</table>

METHODS: SEARCH STRATEGY

CITED STUDY CHARACTERISTICS

• Eight case series, one comparison study
• Small series, total 89 patients in all (mean=10)
• No control group reported in any studies
• Outcome measures varied (‘time to healing’, ‘significant improvement’, ‘% reduction in size’, ‘reduced granulation height’)
• No standardization for wound size
• Risk of bias due to non-random selection, no controls, many do not state study protocol

REFERENCES