Effective management of post burn itch to produce better physical and psychological outcomes

A Systematic Review

Siobhan Connolly & Paul McLiesh
We acknowledge the traditional owners of the land that we work on. We pay our respects to Elders past and present and extend that respect to other Aboriginal peoples present here today.
Background

- Post-burn itch
  - common issue
  - physical and psychological effects
  - Literature shows no clear consensus
Aim

▪ To identify effective management strategies of post-burn itch to produce better physical and psychological outcomes
Method

- A comprehensive search was completed of PubMed, CINAHL and Scopus databases

- Search terms burn, itch and pruritus

- Example Logic Grid

<table>
<thead>
<tr>
<th>Burn</th>
<th>Pruritus</th>
</tr>
</thead>
<tbody>
<tr>
<td>MH burns OR</td>
<td>MH pruritus OR</td>
</tr>
<tr>
<td>TI burn* OR</td>
<td>TI pruritus OR</td>
</tr>
<tr>
<td>AB burn* OR</td>
<td>AB pruritus OR</td>
</tr>
<tr>
<td>TI &quot;thermal injury&quot; OR</td>
<td>TI itch OR</td>
</tr>
<tr>
<td>AB &quot;thermal injury&quot;</td>
<td>AB itch</td>
</tr>
</tbody>
</table>
Systematic review question

- ‘What is the effective management of post burn itch to produce better physical and psychological outcomes?’
Inclusion Criteria

- burn patients of all ages - paediatric + adult
- interventions for reduction or treatment of post-burn itch
- pharmacological or non-pharmacological
- acute or post-acute phase of treatment, including rehabilitation and scar revision stages
- not limited by burn size or depth
Exclusion Criteria

- The review excluded studies that
  - Did not meet the inclusion criteria
  - were not available in the English language
Intervention

- Any pharmacological or non-pharmacological interventions

- Aimed at prevention, reduction or treatment of post-burn itch

- All modalities of delivery i.e. oral, intravenous, cutaneous, etc.
Types of Studies

- Any experimental study which focused on the inclusion criteria included

- Randomised controlled trials, non-randomised controlled trials and quasi-experimental.
Critical Appraisal

- review of title and abstract
- papers selected for retrieval
- assessed by two independent reviewers for methodological validity
- inclusion using JBI Critical Appraisal Checklist for Experimental Studies
- disagreements between reviewers resolved through discussion
- referral to third reviewer not necessary.
Data

- Data was extracted on
  - population
  - interventions
  - study methods
  - outcomes
- Information analysed
  - meta-analysis was not possible
- Findings presented in narrative form
Results

Identification
- Records identified through PubMed database searching (n = 165)
- Records identified through CINAHL database searching (n = 159)
- Records identified through Scopus database searching (n = 285)

Screening
- Records after duplicates removed (n = 348)

Eligibility
- Records screened (n = 101)
- Records excluded (n = 87)
- Full-text articles assessed for eligibility (n = 15)
- Full-text articles excluded, with reasons (n = 5)

Included
- Studies included (n = 10)
<table>
<thead>
<tr>
<th>#</th>
<th>Author, Date, Country</th>
<th>Patient Group</th>
<th>Intervention</th>
<th>Control</th>
<th>Outcomes</th>
<th>Key Results</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Ahuja et al 2013 India</td>
<td>80 adult (18-60y) &gt;5% TBSA; 80% epithelialize or healed &lt;3mths</td>
<td>Pregabalin; cetirizine with pheniramine maleate; pregabalin, cetirizine and pheniramine maleate</td>
<td>Placebo (vit. B complex)</td>
<td>Severity of itch using VAS</td>
<td>VAS itch reduced significantly in pregabalin and combo group. Pregabalin effective at reducing itch without sedation. Massage with coconut oil can relieve mild itch.</td>
</tr>
<tr>
<td>2</td>
<td>Nedelec et al 2012 Canada</td>
<td>23 adult epithelialised</td>
<td>Provase moisturiser</td>
<td>control moisturiser</td>
<td>Description of pruritus; Effect of pruritus;</td>
<td>Reduction in itch duration, frequency and number of episodes. Provase moisturiser effective in reducing post-burn itch.</td>
</tr>
<tr>
<td>3</td>
<td>Lewis et al 2012 Australia</td>
<td>52 adult admitted to Burn Unit</td>
<td>Medixilir oil</td>
<td>aqueous cream</td>
<td>itch reduction; itch recurrence; antipruritic medication use; sleep disturbance</td>
<td>A reduction in itch after cream application was more likely to occur for those participants managed with Medixilir®. Itch recurrence occurred later and used less antipruritic medications in Medixilir® group.</td>
</tr>
<tr>
<td>4</td>
<td>Ahuja et al 2011 India</td>
<td>60 adult (12-60 adult (12-70y); &gt;5% TBSA burn; 80% epithelialized or healed &lt; 1 mths</td>
<td>Gabapentin; combination of Cetirizine &amp; Gabapentin</td>
<td>Cetirizine;</td>
<td>Severity of itch</td>
<td>All options effective reducing post-burn itch. Gabapentin is more effective than Cetirizine or a combination of the two.</td>
</tr>
<tr>
<td>5</td>
<td>Gurol et al 2010 Turkey</td>
<td>63 adolescent (12-18yr); 2nd-3rd degree burn</td>
<td>Massage therapy</td>
<td>standard medical care</td>
<td>Itch rating; VAS pain scale; State Trait Anxiety Inventory</td>
<td>Massage reduced post-burn itch according reduction of VAS scores in treatment group. Massage is one of the leading non-pharmacological methods of burn itch management.</td>
</tr>
<tr>
<td>6</td>
<td>Hetterick et al 2004 USA</td>
<td>30 (20) outpatients</td>
<td>TENS</td>
<td>Standard care</td>
<td>Daily usage of TENS; VAS itch level</td>
<td>VAS scores for itch reduced significantly for treatment group but not for control.</td>
</tr>
<tr>
<td>7</td>
<td>Demling &amp; Desanti 2003 USA</td>
<td>31 patients burns healed 4-12mths pruritic wound &lt;20%; total wound &lt;35%</td>
<td>Doxepin cream</td>
<td>Standard treatment</td>
<td>Daily degree itch; Daily degree pain;</td>
<td>Significant reduction in itch VAS scores in treatment group. Mild to moderate somnolence noted in 50% of antihistamine control group. Mild somnolence noted in 10% of doxepin treatment group.</td>
</tr>
<tr>
<td>8</td>
<td>Demling &amp; Desanti 2002 USA</td>
<td>41 patients burns healed 4-12mths pruritic wound &lt;20%; total wound &lt;35%</td>
<td>Doxepin cream</td>
<td>Standard treatment</td>
<td>Daily degree itch; Daily degree pain;</td>
<td>Significant reduction in itch VAS scores in treatment group. Mild to moderate somnolence noted in 80% of antihistamine control group. Mild somnolence noted in 15% of doxepin treatment group.</td>
</tr>
<tr>
<td>9</td>
<td>Baker et al 2001 USA</td>
<td>32 (17) burn patients (10-60y); itch rating of 4 or above</td>
<td>Cetirizine/ Cimetidine; Diphenhydramine/ placebo;</td>
<td>Revive lotion; Corrective concepts</td>
<td>Itch rating</td>
<td>Cetirizine/cimetidine showed a longer sustained decrease in itch levels compared to Diphenhydramine/ placebo which briefly reduced before increasing again.</td>
</tr>
<tr>
<td>10</td>
<td>Matheson et al 2001 Australia</td>
<td>35 (34) Adult burn patients (14-64yr)</td>
<td>Liquid paraffin with 5% colloidal oatmeal shower and bath oil</td>
<td>Liquid paraffin shower and bath oil</td>
<td>Itch score; Anti-histamine usage</td>
<td>Test group reported lower average itch score and lower average number of requested antihistamine, increasing alertness. Better able to participate in activities of daily life, better patient comfort, better skin integrity by reducing scratching, assisting sleep.</td>
</tr>
</tbody>
</table>
Included articles

- Categorised into two groups of studies
  - pharmacological
  - non-pharmacological interventions
Pharmacological

- Medications
  - Ahuja & Gupta
  - Ahuja et al
  - Baker et al

- Topical treatments
  - Nedelec et al
  - Lewis et al
  - Demling & DeSanti
  - Matheson, Clayton & Muller
Non-Pharmacological

- Gurol et al
  Massage
- Hetterick et al
  TENS
Discussion

- Main conclusion - no one itch treatment or intervention can remove all itch experienced by the burn patient
- While outcomes were measured relatively similarly there was a wide range of variations in the interventions included in each of the studies
- Most articles reported itch reduction only, not eradication
- Also illustrated is that not all interventions are effective for all patients
Recommendations

- Many studies underpowered due to small sample sizes - multi-centre trials to expanded available population

- A standardised itch measurement tool for both paediatric and adult patients

- Available data can be used to create protocols to ensure patients have a better management plan
Conclusion

- Burn itch - significant issue for patients, family + clinicians
- Available literature is varied and assesses effectiveness of wide range of treatments often in small population
- Recent studies assess effectiveness of α2δ ligands
- Further research is required
Since conducting review


- Kaul I, Amin A, Rosenberg M, Rosenberg L, Meyer W, 2017 Use of gabapentin and pregabalin for pruritus and neuropathic pain associated with major burn injury: A retrospective chart review. Burns Published online: August 16, 2017

References


References