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Ousey, Karen

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Achieving International Consensus for the Prevention of Orthopaedic Wound Blistering; Results of a Delphi Survey

Dr Karen Ousey
University of Huddersfield
Acknowledgments

- Thanks to Molnlycke Healthcare for providing a non restrictive educational grant
- All respondents to the Delphi
Searching the literature

- A standard systematic search of the literature returned 137 articles related to wounds and healing

- Cochrane Library; MEDLINE (1950 to June 2011); EMBASE (1974 to June 2011); CINAHL (1982 to June 2011)

- Blind, two person peer review of the abstracts
Literature Review

- Key words
  - Wound blistering
  - Orthopaedics
  - Post operative.

- 9 identified to have direct relevance to wound blisters and prevention and/or treatment
Causes of Wound Blistering

- Movement of the wound site
- Choice of dressing
- Tape use
- Age
- Gender
- Type of incision
- Medications
- Co-morbidity (Tustanowski ¹)
Literature

- Polatsch et al. retrospective audit from patient’s case notes, who had undergone surgery for hip fracture.
- Their incidence of tape-related blisters was 21.4%
- Jester et al (2000) – audit of knee and hip arthroplasty patients, a prevalence of 13% for post-operative blisters
- Gupta et al \(^2\) examined 100 post-operative hip and knee surgery patients and established incidence of blisters at approximately 20%.
Collins (2011)

- No consistency in the treatment and dressing of post-operative orthopaedic wounds, with no one particular set of guidelines or dressing choice applicable with a perceived distinct gain.
Effects of Blistering

- In patient stays in hospital could be lengthened
- Costs increase
- Risk of infection
- Morbidity/mortality rates can be adversely affected
Delphi Group

- Purposive sample
  - Orthopaedic nurses
  - TVNs
  - Orthopaedic consultants

- 17 participants were invited from England, Wales, Ireland, Scotland, Scandinavia, India, Australia and the USA

- 17 people invited 13 agreed to be involved.
Causes of Wound Blistering

- Movement of the wound site
- Choice of dressing
- Tape use
- Age
- Gender
- Type of incision
- Medications
- Co-morbidity (Tustanowski, 2009)
Results of Delphi

- The mean proportion of wound blistering across all institutions was 15.5% (range 1 – 55%)
- Literature search: 13% – 24%
**Incidence of wound blistering following total joint replacement surgery**

<table>
<thead>
<tr>
<th>Event</th>
<th>Annual frequency (mean)</th>
<th>Annual frequency (range)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Knee replacements</td>
<td>298</td>
<td>42 – 700</td>
</tr>
<tr>
<td>Hip replacements</td>
<td>305</td>
<td>100–500</td>
</tr>
</tbody>
</table>
## Dressings Used

<table>
<thead>
<tr>
<th>Wound dressing</th>
<th>Proportion of total use</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mepilex</td>
<td>49.3%</td>
</tr>
<tr>
<td>Tegaderm</td>
<td>21.5%</td>
</tr>
<tr>
<td>Mepore</td>
<td>0.4%</td>
</tr>
<tr>
<td>Opsite</td>
<td>26.0%</td>
</tr>
<tr>
<td>Aquacel</td>
<td>2.8%</td>
</tr>
</tbody>
</table>
## Consequences of wound blistering (out of 60)

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>Choice of dressings is important</td>
<td>56</td>
</tr>
<tr>
<td>Post-operative blistering is a problem</td>
<td>48</td>
</tr>
<tr>
<td>Post-operative blistering leads to longer hospital stays</td>
<td>46</td>
</tr>
<tr>
<td>Blistering main reason for nurse to visit patient on discharge</td>
<td>34</td>
</tr>
<tr>
<td>Blistering leads to wound infection</td>
<td>36</td>
</tr>
<tr>
<td>Blistering leads to increased pain</td>
<td>52</td>
</tr>
<tr>
<td>Blistering associated with macerated skin</td>
<td>45</td>
</tr>
<tr>
<td>Blistering associated with reduced mobility</td>
<td>41</td>
</tr>
</tbody>
</table>
What are the characteristics of an ideal wound dressing?

- Ability to conform to the wound
- Easy to apply
- Allow for swelling
- Easy to remove
- Minimise pain on removal
Who should assess the wound and prescribe appropriate wound dressing?

- 4 respondents – nursing staff
- 2 respondents – doctor or surgeon.
- 3 respondents – doctor/surgeon or a member of the nursing staff.
- 3 respondents did not provide a response to this question.
Choice of dressing during first dressing change

- 5 respondents – same dressing or a different dressing could be applied.
- 4 respondents – same dressing would be applied.
- 1 respondent – different dressing would be applied.
- 2 respondents did not provide a response to this question.
Summary of Scores

[Bar chart showing scores for various criteria such as Easy to apply, Conform to wound, Allow for swelling, Easy to remove, Flexible, Minimise pain on removal, Not stick to wound bed, Be transparent, Control exudate, Available as anti-microbial, Variety of sizes, Wear time up to 14 days, Cost effective, Supported by independent research, Available in acute and primary care.]
Conclusions from Delphi

1. The choice of post-operative wound dressing was the most important factor in the prevention of wound blister formation.
2. Nursing staff should be the first to assess a wound post-operatively and to choose the appropriate wound dressing.
3. The wound dressing should be left intact for as long as possible.
4. An ideal wound dressing to prevent wound blister formation should: conform to the wound, be easy to apply, allow for swelling, be easy to remove and minimise pain on removal.
Full Results

The future

- Develop guidance for prevention of wound blisters in all surgery
- Investigation into ‘resilience’ for patients with acute wounds
- Development of a well being programme for patients with acute wounds
References