Use of topical opioids on burns

Anne Welling
Trainee consultant nurse in emergency care
MSc, BSc, RGN, RN(child)

RCN Emergency Care Association annual conference 2008
Sat. 15th Nov
Introduction & background

- 175 000 ED attendances annually

- Pain difficult to manage

- To investigate whether topical analgesia effective in superficial burns.
Literature review –

Use of topical NSAIDs / LA - limited evidence, mixed results \(^{(1-2)}\)

Topical opioids good analgesic effect on chronic inflammatory skin conditions \(^{(3-15)}\)
Could topical opioids therefore reduce the pain associated with superficial burns?
Aim

To test whether topically applied opioids have an analgesic effect when applied to patients attending the ED with superficial burns.
Objectives

To compare –

• pain scores at 2, 6 and 12 hours post-dressing
• comfort ratings after 24 hrs
• Additional analgesia after discharge of …

Jelonet© dressing
Intrasite© gel and morphine dressing
Intrasite© gel and water (placebo)
Ethical approval & sponsorship

Southampton and South West Hampshire Research Ethics Committee

Sponsors - University of Portsmouth and Portsmouth Hospitals NHS Trust

Study period March-Dec 2006
Methodology

• Single-centred randomized, placebo controlled trial

• Population -

\[ \geq 16 \text{ years and } \geq 50\text{Kg} \]
Minor superficial burns
Less than 5% total body surface area
Caused by hot liquid, hot surface or sun burn
\[ < 8 \text{ hours since injury } \& \text{ no signs of infection} \]
Exclusion criteria

- Burns to the neck, face, head and genitalia
- Electrical / chemical burns
- Patients taking codeine-based medications
- Other distracting injuries
- Presence of pathophysiology affecting perception to pain
- Patients under the influence of alcohol or drugs
• Pain score recorded o/a

• Paracetamol / Ibuprofen orally

• Burnshield© applied

• Patients approached about consent into the study

• Weighed

• Randomized using table of random digits from Research Randomizer Website (http://www.randomizer.org/forms.htm).
Control
• 6-layer Jelonet© dressing

Test
• 15g Intrasite© gel with 1ml 10mg/ml Morphine Sulphate & 6-layer Jelonet© dressing

Placebo
• 15g Intrasite© gel with 1ml sterile water & 6-layer Jelonet© dressing
Why *Intrasite*® gel?

- Contains water & propylene glycol – aid absorption of drugs from surface of burn\(^{(16-17)}\)
- Cooling effect
- Non-adherent
- Neutral pH that does not irritate the skin
- Maintains moist environment
- Keeps exposed nerve endings bathed in fluid.
Why Morphine sulphate?

• Cheap
• Available in ED
• Remains stable when mixed with Intrasite© gel\(^{(18)}\)
Results

- 127 patients identified
- 68 declined to participate or failed to meet inclusion criteria
- 59 recruited
- 10 were lost to follow-up
- 49 included in the final analysis - 17J, 15M, 17P
• Demographics equal across groups except -

• Mean burn size (cm$^2$) –

  Jelonet    78.9  (SD 127)
  Morphine  26.9  (SD 34)
  Placebo   19.7  (SD 19)
Pain scores

0-100mm Visual Analogue Scale (VAS)

Recorded o/a, 2, 6, & 12 hours post treatment in pain diary.

Standard deviation of 20mm, 5% significance level, power 80%= 63 participants required
Median pain scores - $p=0.27-0.86$
Additional analgesia

Recorded in pain diary

Converted into units –

1 unit = 1g paracetamol / 400mg Ibuprofen
½ unit = 500mg paracetamol / 200mg Ibuprofen
Number of patients taking additional analgesia

- Jelonet: 5 (Additional) + 12 (No)
- Morphine: 4 (Additional) + 15 (No)
- Placebo: 6 (Additional) + 17 (No)
Total analgesic units - $p=0.05$
Comfort rating

Recorded at f/up

5-point Likert scale

1 = very comfortable
3 = comfortable
5 = very uncomfortable
Median comfort ratings - $p=0.39$
Study limitations

• Fewer participants recruited reducing power

• Strict inclusion criteria limits generalizability

• Lacks pharmacokinetic evidence

• No analysis to assess link with comfort – pain score – analgesia
Conclusion

Pain management of burns difficult

No statistical significance in median pain scores

Morphine group only group to reduce pain by >20mm at two time intervals (2 & 6 hrs)

Morphine group took less analgesia

Intrasite & morphine safe alternative
References

1) Alvi et al. The safety of topical anaesthetic and analgesic agents in a gel when used to provide pain relief at split skin donor sites. *Burns.* 1998, 24:54-57


Any questions?