An audit of ward-level pain management at a regional burn centre: Is the National standard adequate?

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Introduction

Burn injuries are a global public health problem. An estimated 250,000 cases per year are reported in the UK, with approximately 13,000 of those requiring admission. Burns can be debilitating for the patient. Their management is often challenging due to the severe pain associated with the injury itself as well as the procedures required for management.

Pain is particularly an issue in the first 72 hours following a burn injury. The severity of pain does not always correlate to the severity of the burn. The perception of pain can be influenced by biological, psychological, cognitive, affective, behavioural as well as social factors (2).

Types of pain experienced by burn patients include acute pain from the injury itself, background pain, breakthrough pain and procedural pain. To achieve good pain control, pain must be frequently assessed with a validated tool and analgesia tailored to individual patients' needs. A well designed protocol for pain management can significantly influence the patient's hospital experience.

AIMS

1) To audit pain management practice at ward level against set national standards.
2) To gauge the adequacy of that standard.
3) To assess the true effectiveness of pain management at our centre and make improvements to our pain management SOPs (standard operating procedure) accordingly.

Methods

PART 1: First part of audit was comparison against the set national standard of pain assessment. The only available standard in the UK to audit against is NHS Key Performance Indicator BRN04-A: 'Proportion of inpatients receiving daily pain assessment using a validated tool'. This data is routinely collected for the IBID database.

PART 2

- A retrospective audit of pain management practices over a 6 month period (November 2020 to April 2021)
- Patient selection: patients admitted with ≥ 1% TBSA burns = 65 patients
  - 19 patients were excluded either for insufficient data,or ITU admission
- Electronic case notes retrieved from electronic database
- Data collected:
  - Pain scores (1-10) over 1st, 2nd and 3rd 24 hour periods of admission
  - Analgesia received over 1st, 2nd and 3rd 24 hour periods of admission
  - Comorbidities
  - Timing of pain assessment on the ward

*Pain assessment tool in use: Numerical rating pain scale NRPS (1- 10)

Results

Part 1

Fig 1. NHS Key Performance Indicator BRN04-A

Part 2

Number of patients	**41**
Age	48.5(range 16-88)
Male : Female	27 : 14
Average TBSA(%)	3.81% (range 1-17)
SPT : Mixed : DD : FT	15 : 18 : 3 : 8

Table 1. Table displaying patient demographics

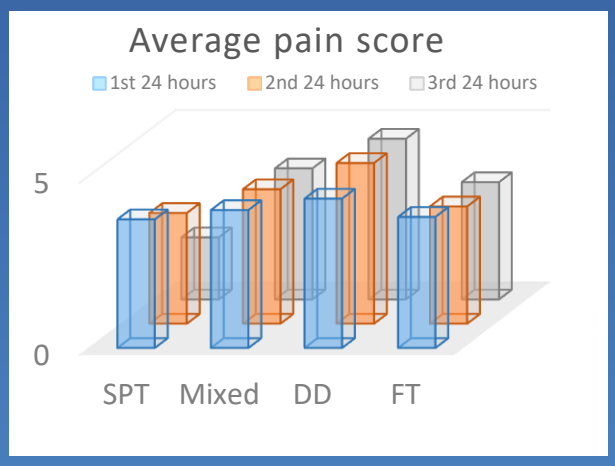

Fig 2 : Bar chart showing average pain score based on burn depth over 3 days

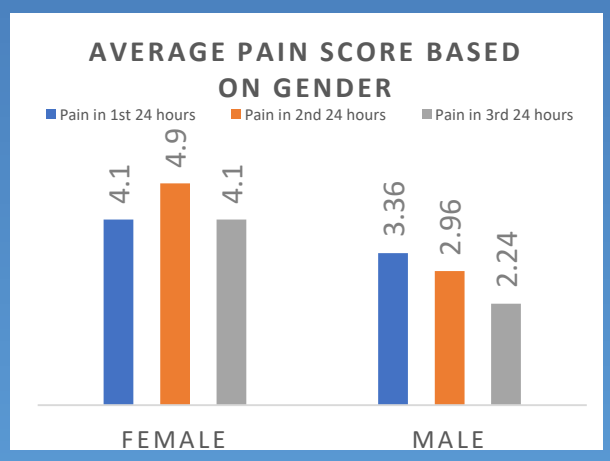

Fig 3. Average pain scores over 3 days based on gender

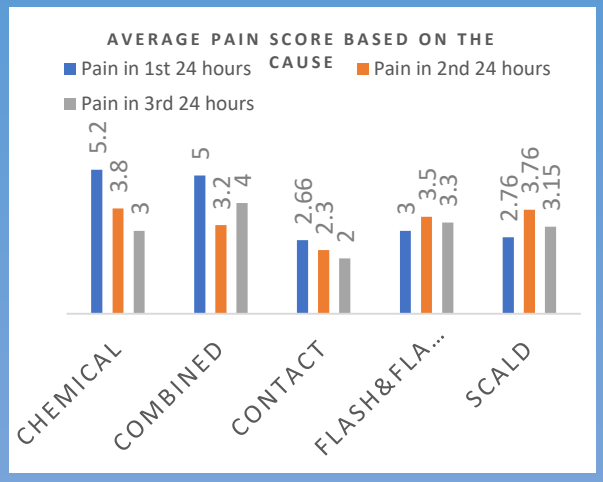

Fig 4. Average pain score over 3 days based on the mechanism of burn

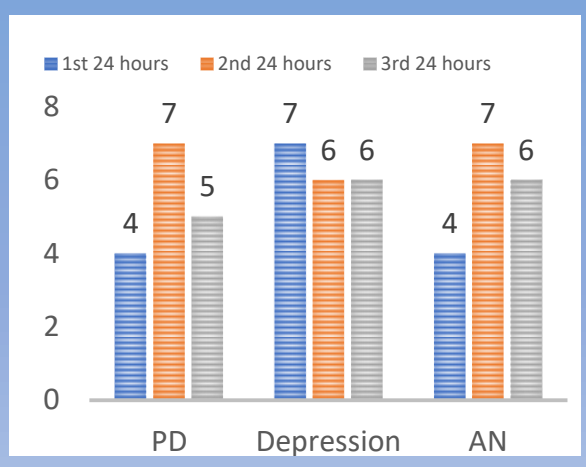

Fig 5. Average pain score in patients known to have psychiatric issues (Depression/Personality disorder/Anorexia Nervosa)

Medications / Burn thickness	Paracetamol	Ibuprofen	Co-Codamol	Oramorphine
Mixed	3	5	8	8
Superficial	5	6	11	8
Deep Dermal	2	2	1	1
Full Thickness	0	1	2	1

Table 2 : Oral medications used within the 1st 72 hours of admission

Medications / Burn thickness	Inhalational: Entonox	Inhalational: Penthrox	IV Medications	Transdermal
Mixed	8	0	0	0
Superficial	5	0	0	0
Deep Dermal	1	0	0	0
Full Thickness	0	0	0	0

Table 3 Other medications used within the 1st 72 hours of admission

Discussion

The National standard which is audited on a regular basis only recommends once daily assessment with a validated score. The SOP for analgesia in burn, in use at the time of the audit was written in 2013. It sets out guidelines for all staff employed within Mersey Regional Burn Centre who participate in the management of pain for burns patients.

Our audit found that pain scores were only recorded at time of observations and therefore only capturing background pain. Pain scores were not recorded after painful interventions or after administration of breakthrough analgesia. Higher pain scores were observed with chemical burns, deep dermal burns, female patients and patients will psychiatric comorbidities. We also found that some medications were not used or under-utilised. For example Penthrox was not routinely used and the same applies to IV forms of paracetamol, Ketamine and Morphine. We also found that Oramorph was not administered as frequently as could be according to protocol.

Our study highlighted areas for improvement:

- **Timing and frequency of pain assessment**

Adopting a more pro-active and pre-emptive approach to pain. Define and categorise our patients according to their analgesia requirements 1) acute burn 2) initial debridement 3) background 4) perioperative.

- **Psychology and psychiatry, holistic therapy involvement**

Early input from psychology and psychiatry as an adjunct to pain management especially for patients with mental health issues.
Future considerations: adjunctive techniques to pain management:
- relaxation techniques, distraction techniques e.g. music or use of virtual reality.

- **Staff education and learning**

Teaching sessions on analgesia prescribing to improve confidence amongst junior doctors to prescribe more inhalational and intravenous analgesia.

Conclusions

Our pain management is fully compliant with the only UK standard (Key Performance Indicator) but this standard is too low and did not reflect on a range of areas where we need to improve. Our pain management protocols including timing of assessment and intervention would benefit from being better attuned to the needs of our patients: for instance assessment of pain did not coincide with painful interventions or surgery.

Subsequent dialogue across the burn MDT including the pain team is underway to develop a multi-modal approach to pain management and an updated pain SOP. We are aiming for a more pre-emptive and pro-active approach to pain assessment and thus pain management. Future inclusion of psychological and ancillary techniques, including virtual reality are also being explored, and we are keen to establish a new standard.

References

1. British burn association National standards for provision and outcomes in adult and Paediatric burn care, 2018
2. SOB : 026: The Management of pain and burns patients, The Mersey burn regional unit, 2013
3. The NHS Key Performance Indicator BRN04-A