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Acute pain management in burn patients: Appraisal and thematic analysis of four clinical guidelines

Hejdi Gamst-Jensen [a,*], *Pernille Nygaard Vedel* [b], *Viktoria Oline Lindberg-Larsen* [a], *Ingrid Egerod* [c,d]

[a] *Department of Anesthesiology, Copenhagen University Hospital, Bispebjerg, Copenhagen, Denmark*
[b] *Department of Orthopedic Surgery, Copenhagen University Hospital, Bispebjerg, Copenhagen, Denmark*
[c] *Faculty of Health & Medical Sciences, University of Copenhagen, Denmark*
[d] *Trauma Centre, Copenhagen University Hospital Rigshospitalet, Denmark*

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ABSTRACT

Objective: Burn patients suffer excruciating pain due to their injuries and procedures related to surgery, wound care, and mobilization. Acute Stress Disorder, Post-Traumatic Stress Disorder, chronic pain and depression are highly prevalent among survivors of severe burns. Evidence-based pain management addresses and alleviates these complications. The aim of our study was to compare clinical guidelines for pain management in burn patients in selected European and non-European countries. We included pediatric guidelines due to the high rate of children in burn units.

Method: The study had a comparative retrospective design using combined methodology of instrument appraisal and thematic analysis. Three investigators appraised guidelines from burn units in Denmark (DK), Sweden (SE), New Zealand (NZ), and USA using the AGREE Instrument (Appraisal of Guidelines for Research & Evaluation), version II, and identified core themes in the guidelines.

Results: The overall scores expressing quality in six domains of the AGREE instrument were variable at 22% (DK), 44% (SE), 100% (NZ), and 78% (USA). The guidelines from NZ and USA were highly recommended, the Swedish was recommended, whereas the Danish was not recommended. The identified core themes were: continuous pain, procedural pain, post-operative pain, pain assessment, anxiety, and non-pharmacological interventions.

Conclusion: The study demonstrated variability in quality, transparency, and core content in clinical guidelines on pain management in burn patients. The most highly recommended guidelines provided clear and accurate recommendations for the nursing and medical staff on pain management in burn patients. We recommend the use of a validated appraisal tool such as the AGREE instrument to provide more consistent and evidence-based care to burn patients in the clinic, to unify guideline construction, and to enable interdepartmental comparison of treatment and outcomes.

* *Corresponding author at:* Department of Anesthesiology, Copenhagen University Hospital, Bispebjerg, Bispebjerg Bakke 23, 2400 Copenhagen NV, Denmark. Tel.: +45 35313531; fax: +45 35312966.
E-mail address: Hgamst@yahoo.com (H. Gamst-Jensen).

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1. Introduction

Burn is the 11th most frequent cause of death in childhood (age 1–9 years), and yet despite of the magnitude of the problem appropriate treatment of burn related pain remains an issue [1]. The degree of the burn, the person affected, and the sensory input act as mediators of the pain perception [1]. The pain varies by the depth of the skin lesion and the inflammatory response; initially the more superficial, the more painful. Burns have been classified into three groups based on their vertical spreading [2]: First-degree burns affecting epidermis, second-degree burns involving epidermis and part of dermis, and third-degree destroying epidermis and dermis. Free nerve endings add to the pain experience and while full thickness burns are initially numb, subsequent nerve regeneration might cause neuropathic pain [1,2]. The subtypes of burn related pain are: background pain, breakthrough pain, procedural pain, and postoperative pain [3].

All stages of burns might be present in the same individual, making the pain-level difficult to assess and increasing the risk of excessive or inadequate treatment. Varying etiologies and intensity of pain demand individual and flexible pain management. The long-term risk of undertreated pain is the development of chronic pain, depression and Post Traumatic Stress Disorder (PTSD) [1]. Studies show an alarmingly high prevalence of chronic pain, Acute Stress Disorder (ASD) and depression among individuals who have suffered severe burns [4–6], rendering the issue of pain management essential in modern burn care.

The European Burn Association encourages its members to develop and share clinical guidelines in order to move from a clinical practice dominated by personal experience to evidence-based and cost effective practice [7]. The aim of our study was to compare clinical guidelines for pain management in burn patients in selected European and non-European countries. We included pediatric patients due to the high rate of children in burn units.

2. Method

2.1. Materials and methods

The study had a comparative retrospective design triangulating instrument appraisal and thematic analysis. In 2013 we contacted seven burn units in Denmark, Sweden, New Zealand and USA to recruit material for our study. The countries were convenience sampled selected for being comparable Western countries using either English or one of the Scandinavian languages, and the departments were selected on the basis of personal knowledge and a literature search.

Initial contact was made to head physicians and subsequently to nurse managers, clinical specialists and other physicians by telephone or email. We accepted clinical guidelines, protocols or pathways and chose to refer to any of these instruments by the general term of 'guideline' in this study. We included guidelines that (a) provided references and (b) were updated within the past five years (Fig. 1). Four clinical guidelines met the criteria and were included in the study. The clinical guidelines were appraised using to the AGREE instrument (Appraisal Guidelines for Research and Evaluation) version II [8], and subsequently we performed a thematic text analysis to describe central themes in the guidelines. The appraisal by the AGREE instrument was carried out by 3 appraisers who assessed all domains and items in every guideline. The thematic analysis was performed by the corresponding author assisted by the last author.

2.2. Strategy of analysis (guideline appraisal)

The AGREE Instrument is an internationally developed and tested appraisal instrument for assessing the quality of clinical guidelines; also providing a methodological strategy for the development of guidelines, and informing about the type of information to be included in the guidelines [8]. Clinical guidelines should be validated both internally and externally, and should be easy to use in practice. The AGREE instrument

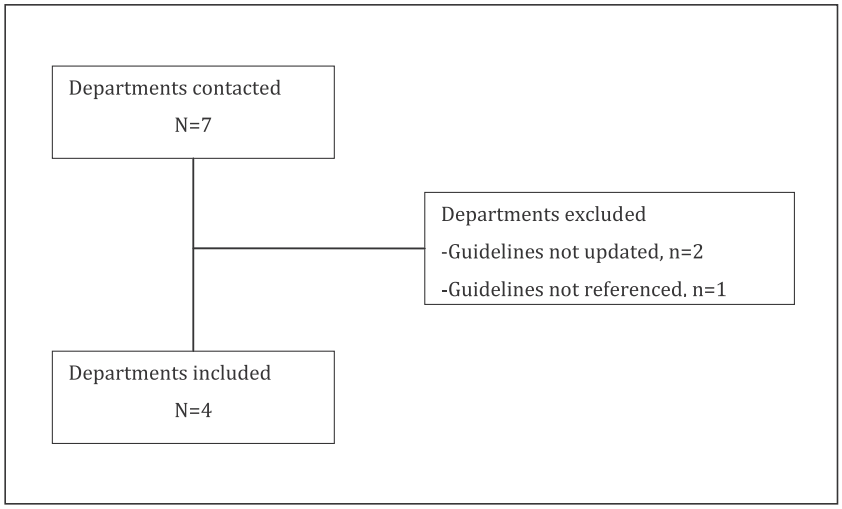

Fig. 1 – Flow-chart of inclusion.