

Pain Relief

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Overview

Pain is a subjective feeling belonging to the patient, and only the patient can decide if pain has been relieved. The successful management of pain involves a combination of several elements: a proper attitude in approaching each patient as an individual; the ability to evaluate the degree of pain; an understanding of pain physiology and analgesia pharmacology; and the clinical application of this knowledge.¹

There is a wealth of knowledge and research on pain relief but I will limit myself to a description the main areas of relevance to our patients — the influence of ethnicity on pain management — within which I will also discuss pain measurement tools and touch on pain theory. Detailed pain physiology, analgesia pharmacology and the clinical treatment of pain is covered by standard medical texts.

Influence of ethnicity on pain management

Introduction

There is no published research specifically examining pain management in the Australian Aboriginal population; there is, however, a completed research project² in preparation for publication from the Royal Darwin Hospital's emergency department and many papers of relevance on population subgroups in the USA.

There is firm evidence of disparities in pain management between different ethnic groups. Part of the rationale for this is that people from lower socioeconomic groups experience disparities for many health related measures.^{3,4,5} Income alone, however, does not explain the differences in outcome.^{6,7}

Padianathan describes less analgesia and less patient satisfaction of pain management in Aboriginal patients presenting to an Australian tertiary emergency department compared to non-Aboriginal patients.² This disparity in acute pain management reflects the findings of two separate studies by Todd et al. in an emergency department setting which found that Hispanic ethnicity and African-American ethnicity were the strongest predictors of receiving no analgesia for long bone fracture after controlling for confounders (gender, language, insurance status).^{6,7} The same cross-cultural trends have been found for chronic cancer pain¹² and post-operative pain.¹³

Why do we have disparity in pain management? To examine this we have to deconstruct the clinician– patient interaction:

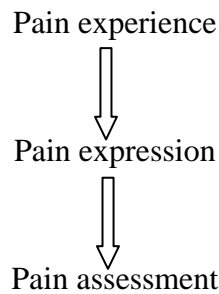


Figure 1: The clinician–patient interaction

Pain experience

Do ethnic groups experience pain differently? Zatzick et al. reviewed 13 cross-cultural studies (total of 42,933 subjects) from 1944–89 looking experimentally at the ability of people to discriminate induced noxious stimuli.⁸ None of these studies found ethnic differences in the ability to discriminate painful stimuli. The conclusion is that differences in pain expression and pain behaviours do not have a neuro-sensory basis. None of the studies were on an Australian Aboriginal population but there is no reason to believe that this population is significantly different.

Pain expression

After experiencing pain the patient expresses pain related behaviours, including those involved with seeking medical attention where the patient expresses his/her pain to a clinician. There is no published research on the Australian Aboriginal population in this area. The world literature on cross-cultural pain expression, many reviews of which are available^{9,10,11}, leaves little doubt that variations in pain related behaviour by ethnicity do exist, however, intra-ethnic variations are also prominent and often more marked than inter-ethnic differences. Experience has shown that pain expression in the Australian Aboriginal population may be different but has yet to be quantified. This is a rich area for future research.

Pain assessment (pain measurement tools)

Introduction

There is no gold standard to objectively quantify this multi-dimensional, internal and personal experience. Currently-used tools are uni-dimensional and often limited to quantifying severity. We need to be able to measure pain because, without baseline measurement, we cannot assess the response to treatment which is a complex endpoint not limited to ‘pain free’. There is also mounting evidence that formal pain measurement reveals unrecognised and under-treated pain, makes us aware of iatrogenic pain, improves pain management and reduces return visits.^{14,15,16}

Gate control theory of pain

The Melzack et al. ‘gate control’ theory of pain¹⁷, although extensively modified since 1965, remains the basis for our understanding of pain. Further work by Melzack with Casey in 1968¹⁸ proposed a multi-dimensional model of pain experience, which included:

1. A sensory-discriminative dimension, corresponding to the classical view of pain perception and associated with information on location, magnitude and temporal pattern of pain.
2. An affective-motivational dimension associated with aversion, fear and other emotional components.

3. A cognitive-evaluative dimension, where the significance and reaction to pain is determined through the interaction of current sensory and affective dimensions of pain with higher cognitive functions and previous experience.

Multi-dimensional pain assessment tools (research)

The only multi-dimensional tool for pain assessment in widespread use is the McGill Pain Questionnaire.¹⁹ This tool takes 15–20 minutes to complete, and so is not useful in the clinical environment, but is mentioned as it is an important and validated research tool across many (Western) language groups.

Uni-dimensional pain assessment tools

The visual analogue scale (VAS) is the most commonly used pain assessment scale. Typically it consists of a 10 cm line bounded by perpendicular stops and descriptors (figure 2).

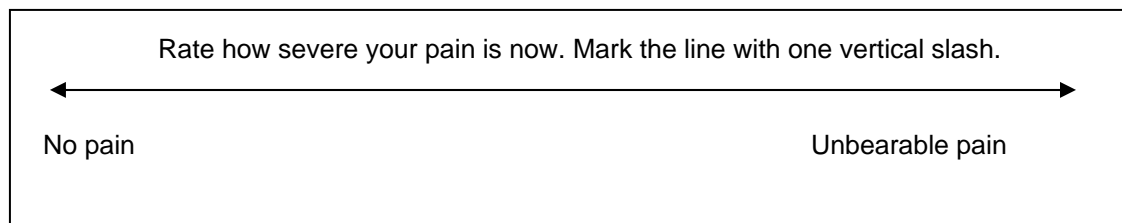


Figure 2: Visual analogue pain scale²⁰

The score is read in centimetres from the left. Horizontal lines are preferred as scores tend to be more normally distributed²¹ and placing adjectival descriptors or intermediate marks along the line creates artificial clustering.^{20,21,22} Interestingly, Chinese subjects assess pain more accurately with a vertical scale rather than the more usual horizontal scale so there appear to be cross-cultural differences in interpretation.

There is a problem of determining what movement along the scale is clinically relevant rather than statistically relevant. For example, do patients appreciate that a new medication produces a 0.75 cm reduction in their VAS? Data from a USA study suggests that a reduction in the VAS by 2.9 cm corresponds with the patient's perception of adequate pain relief²³, however this may be different for different ethnic groups and has not been studied in the Australian Aboriginal population.

VAS in the Australian Aboriginal population

One major problem is that not all adults understand the concept of the VAS as a graphical representation of pain severity. Thus up to 11% of adults²⁴ and 25% of the elderly²⁵ are unable to complete it. In unpublished research conducted in the Royal Darwin Hospital emergency department² the use of the VAS had to be abandoned in Aboriginal patients due to inability to complete the scale. Further validation of the use of the VAS is required in the Australian Aboriginal population.

[Editor: Some work carried out in Alice Springs Hospital found that an adaptation of a paediatric visual pain scale worked well and influenced analgesia decision making. This is the set of faces reproduced in the CRANA Clinical Procedures Manual, page 87. The protocol recommends its use where possible.]

Decision to treat

The final step in the clinician–patient interaction is the ‘decision to treat’. There are studies in non-Aboriginal populations that show that even where there are interventions that improve pain monitoring and relay that information to the physician there is no change in physician prescribing practices or improving patient pain relief.^{26,27} There is also evidence to the contrary.^{14,15,16} This

highlights, but does not shed light on, the complex nature of the physician's decision to treat. More research is required in this area.

[Additional notes from Editorial Committee:

Pethidine has been removed from the protocol after advice from some experts that:

- 1. It is particularly problematic for leading to drug seeking behaviour*
- 2. It is no better than morphine for analgesia*
- 3. Concerns about use of morphine in ureteric or biliary colic are not well supported and should not influence practice.*
- 4. That concerns about use of pethidine in penetrating eye injury were not supported by any significant evidence from the literature (more detail in the eye chapter).*

The committee was also concerned about perceived high rates of use of paracetamol/codeine. This is not a medical problem per se but may be unnecessarily leading to problems of opiate tolerance or dependence. By recommending that ongoing use of codeine-paracetamol be reviewed by a doctor with a view to assessing the need for tramadol or oxycodone, or SR morphine, it is encouraging the ongoing use of codeine to be regarded as an 'S8' issue.

Dr Tim Semple from RAH pain clinic strongly supports the aim of not using paracetamol/codeine mixtures to prevent drift into long-term use of strong pain medication use, tolerance, habituation, side effects (including medication seeking behaviour) and reduced options for use in future pain episodes.

Paracetamol-codeine 8 mg is no longer mentioned, effectively discouraging its use. This is because the editorial committee believe that it is tending to be over-used, with little analgesic advantage, higher rates of side effects and, in some instances, likely tolerance and habituation. There is some supporting evidence for this stance (limited analgesic role and increased side effects) for the 8 mg codeine combination from a systematic review.^{28]}

References

1. Ducharme J. Whose pain is it anyway? Managing pain in the emergency department. *Emergency Medicine* 2001;13:271–3.
2. Padianathan N. Pain Management in the Royal Darwin Hospital emergency department. Presentation to the scientific meeting of the Australasian College for Emergency Medicine, Canberra, 2000
3. Burstin H, et al. Socioeconomic status and risk for substandard medical care. *JAMA* 1992; 268:2383–97.
4. Sorlie P, et al. Black–white mortality differences by family income. *Lancet* 1992; 340:346–50.
5. Khan K, et al. Health care for black and poor Medicare patients. *JAMA* 1994; 271:1179–84.
6. Todd K, et al. Ethnicity as a risk factor for inadequate emergency department analgesia. *JAMA* 1993; 269:1537–9.
7. Todd K, et al. Ethnicity and analgesic practice. *Ann Emerg Med* 2000; 35:11–16.
8. Zatzick D, et al. Cultural variations in response to painful stimuli. *Psychosom Med* 1990; 52:544–57.
9. Wolff B, et al. Cultural factors and the response to pain: a review. *Am Anthropologist* 1968; 70:494–501.
10. Wolff B, et al. Ethnocultural factors influencing pain and illness behaviour. *Clin J Pain* 1985; 1:23–30.
11. Martinelli A. Pain and ethnicity: how people of different cultures experience pain. *AORN J* 1987; 46:273–8.
12. Cleeland C, et al. Pain and treatment of pain in minority patients with cancer. *Ann Intern Med* 1997; 127:813–16.
13. Ng B, et al. The effect of ethnicity on prescriptions for patient controlled analgesia for post operative pain. *Pain* 1996; 66:9–12.
14. Singer A, et al. Comparison of topical anaesthetics and vasoconstrictors vs lubricants prior to nasogastric intubation: A randomised, controlled trial. *Acad Emerg Med* 1999; 6:184–90.

15. Cohen D. Effects of mandated pain scales on frequency and timeliness of analgesic administration. *Acad Emerg Med* 2001; 8:485.
16. Ducharme J. Emergency management of acute migraines: Is the headache really over? *Acad Emerg Med* 1998; 5:899–905.
17. Melzack R, et al. Pain mechanisms: A new theory. *Science* 1965; 50:971–9.
18. Sensory, motivational and sensory control determinants of pain: A new conceptual model. In: Kenshalo D (ed). *The skin senses*. Springfield,IL: Charles C Thomas, 1968; 423–43.
19. Katz J, et al. Measurement of pain. *Surg Clin North Am* 1999; 79:231–52.
20. Scott J, et al. Graphic representation of pain. *Pain* 1975; 2:175–84.
21. Sriwantanakul K, et al. Studies with different types of analogue scales for measuring pain. *Clin Pharmacol Ther* 1983; 34:234–9.
22. McCormack H. Clinical applications of visual analogue scales: a critical appraisal. *Psych Med* 1988;18:1007–19.
23. Lee J, et al. Clinical meaningful values of the visual analogue scale of pain severity. *Acad Emerg Med* 2000; 7:550.
24. Kremmer E. Measurement of pain: Patient preference does not confound pain measurement. *Pain* 1981; 10:241–8.
25. Her K. Comparison of pain assessment tools for the use with the elderly. *Appl Nurs Res* 1993; 6:39–46.
26. Ward S, et al. Patient satisfaction and pain severity as outcomes in pain management: A longitudinal view of one setting's experience. *J Pain Symptom Manage* 1996; 11:242–51.
27. Kravits R et al. Bedside charting of pain levels in hospitalised patients with cancer: A randomised controlled trial. *J Pain Symptom Manage* 1996; 11:81–7.
28. de Craen AJM, Di Giulio G, Lampe-Schoenmaeckers AJEM, Kessels AGH, Kleijnen J. Analgesic efficacy and safety of paracetamol-codeine combinations versus paracetamol alone: a systematic review. *BMJ* 1996;313(7053):321–5.