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Patient attitudes towards analgesia and their openness to non-pharmacological methods such as acupuncture in the emergency department

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Paper Title: Patient attitudes towards analgesia and their openness to non-pharmacological methods such as acupuncture in the ED.

Running Head: Patient attitudes to ED analgesia

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AJ, EA, IR, EV and MB designed the study, while AJ, EA, IR and EV carried out data collection and all (AJ, EA, IR, EV, MB and DH) assisted with analysis. All authors contributed to review and revision of the manuscript, and all take responsibility for the final version. This study was carried out at St John of God Murdoch Hospital.

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Abstract

Aims: To investigate patient attitudes to analgesia, opioids and non-pharmacological analgesia including acupuncture, in the ED.

Methods: ED patients with pain were surveyed regarding: pain scores, satisfaction, addiction concern, non-pharmacological methods of pain relief, and acupuncture. Data were analysed using logistic regression.

Results: Of 196 adult patients, 52.8% were 'very satisfied' with analgesia. Most patients (84.7%) would accept non-pharmacological methods including acupuncture (68.9%) and 78.6% were not concerned about addiction. Satisfaction was associated with male gender, and 'adequate analgesia' but not with opioids.

Conclusion: Most patients were generally satisfied with ED analgesia and were open to non-pharmacologic analgesia including acupuncture.

Key words: acupuncture, emergency medicine, pain management.

Introduction

There are increasing government and prescriber concerns regarding adverse effects of opioids. Current ED practices may contribute to these concerns by introducing and dispensing take-home supplies.¹ Some doubt exists whether opioids improve patient satisfaction in the ED.² There is increased interest in the use of acupuncture analgesia in ED.^{3,4} However, a paucity of research exists on patient perspectives in the ED on: non-pharmacological methods such as acupuncture, the short-term adverse effects of opioids and long-term concerns regarding addiction.

Aims

The aims of this survey were to investigate patient perceptions of their usual analgesic care (UAC) including pharmacological and non-pharmacological modalities and their willingness to use non-pharmacological methods such as acupuncture in conjunction with UAC.

Methods

After receiving ethics approval as a low-risk human research project (St John of God HREC reference 1107), we performed a prospective survey using a convenience sample of adult patients presenting to our private ED over a 9-month period. Inclusion criteria were presenting to ED with acute pain, assigned Australian triage scale categories 3-5, and indicating a numerical pain rating scale out-of-10 (NPRS) $\geq 4/10$ (0=no pain, 10=worst pain). Patients were interviewed approximately one-hour (range up to 3 hours) after analgesia was first offered. The questionnaire (see on line appendix) surveyed analgesia taken within 4 hours of ED attendance, pharmacological analgesia administered in ED, pain scores and patient attitudes towards their pain management. Likert scales were used to document patient satisfaction, willingness to receive non-pharmacological analgesia and acupuncture as an adjunct to UAC, concern regarding addiction to UAC given in ED and if patients reported an adverse event to their analgesia - their willingness to receive this medication again.

Data Analysis: 'Adequate analgesia' was defined as NPRS decreased by ≥ 2 from the triage NPRS and to a level of < 4 .^{5,6} Six-point Likert scales were collapsed to binary responses with no ≤ 3 and yes ≥ 4 . For example, 'general satisfaction' was defined as $\geq 4/6$. To allow comparison with other studies,⁵ those who were 'very satisfied' (6/6) were also compared to those who scored $\leq 5/6$. Stata (14.1 StataCorp™, College Station, TX, USA), was used to conduct univariable logistic regression to assess associations between binary outcomes and potential predictors.

Multivariable models included predictors with p values ≤ 0.1 on univariable analysis. A p value <0.05 was considered significant.

Results

Key results including responses to questionnaire and logistic regression outcomes are reported in Tables 1 and 2 respectively. Of 196 adult patients who completed the survey (6 documented refusals), 52.8% were 'very satisfied' with their analgesia. General satisfaction was significantly associated with male gender (multivariable odds ratio (OR)=8.44). Achieving 'adequate analgesia' was significantly associated with being 'very satisfied' (multivariable OR=3.92), but not with receipt of opioid analgesia. Most patients (84.7% rating $\geq 4/6$ on Likert scale) would accept non-pharmacological methods of analgesia including acupuncture (68.9%) as an adjunct to their ED pain management. Overall 78.6% were unconcerned about addiction to the pharmacological analgesia received in ED; of those who received an opioid 84.1% were unconcerned. A significant minority (19.9%) had patient reported UAC adverse effects. Increasing age was associated with being 'very satisfied' with ED pain management and females were significantly more willing to use non-pharmacological analgesia. Patients who were concerned about addiction to the medications received in ED were less likely to have received opioids, while older patients were more likely to have received opioids.

Discussion

We found similar results to the TARGET study⁵ for percentages of patients 'very satisfied' with UAC and the association with 'adequate analgesia'. In addition, our study showed an association between general satisfaction and being male but not with administration of opioids. The lack of improved satisfaction with opioids is consistent with the study by Bhakta et al.²

There was a high degree of willingness of patients in our study to try non-pharmacological methods of analgesia including acupuncture, particularly for females, which is consistent with other studies. In recent trials, non-pharmacological methods such as acupuncture, achieved high patient satisfaction.^{3,4} The reasons for willingness to use non-pharmacological methods may be due to a desire for holistic care and to avoid UAC adverse effects including addiction. Our survey showed a significant incidence of UAC adverse effects, but a minority were concerned about addiction.

There is only a theoretical risk, as opposed to ED discharge prescription of opioids where there is a documented risk,¹ that brief exposure to intra-departmental opioids could trigger ongoing misuse, hence the trend to 'opioid

free' or 'opioid light' EDs.⁷ Further investigation is required to evaluate this risk and whether the low concern by patients is justified. In recent acute pain management guidelines, such as for low back pain, non-pharmacological therapies are increasingly encouraged, and the use of opioids discouraged. The aims of these recent guidelines have been to reduce accidental overdose deaths from opioids (particularly middle-aged males) and addiction.⁸ It is reassuring that most of the surveyed patients, and in particular females, would be open to this change in direction.

Conclusion

Most patients were 'generally satisfied' with analgesia in the ED and willing to accept non-pharmacological methods of pain relief, including acupuncture. The further introduction and evaluation of acupuncture as a non-pharmacological analgesic alternative in ED from the patients' perspective is justified.

Limitations

There are several limitations to this study creating possible bias. The questionnaire was not formally validated and was administered 1-3 hours after UAC was offered, therefore patient perceptions may not be reflective of the entire ED presentation. Our methodology utilised a convenience sample with recruitment limited by researcher availability. The sample size may be underpowered for some outcomes and predictor variables while analysis was post hoc rather than preassigned.

Disclosure statement

No competing financial interests or relationships exist.

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References

1. Barnett ML, Olenski AR, Jena AB. Opioid-prescribing patterns of emergency physicians and risk of long-term use. *N. Engl. J. Med.* 2017; **376**: 663-73.
2. Bhakta HC, Marco CA. Pain management: association with patient satisfaction among emergency department patients. *J. Emerg. Med.* 2014; **46**: 456-64.
3. Cohen MM, Andrianopolous N, Smit, D-V et al. Acupuncture for analgesia in the emergency department: a multicentre, randomised, equivalence and non-inferiority trial. *Med. J. Aust.* 2017; **206**: 494-9.
4. Jan AL, Aldridge ES, Rogers IR, Visser EJ, Bulsara MK, Niemtzow RC. Does acupuncture have a role in providing analgesia in the emergency setting? A systematic review and meta-analysis. *Emerg. Med. Australas.* 2017; **29**: 490–8.
5. Taylor DM, Fatovich DM, Finucci DP et al. Best-practice pain management in the emergency department: A cluster-randomised, controlled, intervention trial. *Emerg. Med. Australas.* 2015; **27**: 549-57.
6. Jao K, Taylor DM, Taylor SE, Khan M, Chae J. Simple clinical targets associated with a high level of patient satisfaction with their pain management. *Emerg. Med. Australas.* 2011; **23**: 195-201.
7. Goett R, Todd KH, Nelson LS. Addressing the challenge of emergency department analgesia: innovation in the use of opioid alternatives. *J. Pain Palliat. Care Pharmacother.* 2016; **30**: 225-7.
8. Roxburgh A, Hall WD, Dobbins T et al. Trends in heroin and pharmaceutical opioid overdose deaths in Australia. *Drug alcohol depend.* 2017; **179**: 291-8.

Outcome	Median score (IQR)	Percentage ≥ 4/6 on Likert scale (95% binomial exact confidence interval)
Severity of pain on ED presentation, NPRS (n = 196)	7 (6, 8)	Not Applicable
Severity of pain one-hour after analgesia was offered, NPRS (n = 193)	4 (3, 6)	
Time from triage assessment to first dose of pharmacological analgesia, minutes (n = 168)*	45 (26, 79)	
Time from pharmacological analgesia order to administration, minutes (n = 116)[#]	8 (3.8, 14.3)	
Satisfaction out of 6 Likert scale (n = 195)	6 (5, 6)	93.8% (89.5 - 96.8%)
Patients' openness to non-pharmacological methods of analgesia as an adjunct to their pain management - rating out of 6 Likert scale (n = 196)	5 (4, 6)	84.7% (78.9 - 89.4%) [^]
Patients' willingness to use acupuncture in addition to pharmacological analgesia - rating out of 6 Likert scale (n = 195)	4 (3, 5)	68.9% (61.9 - 75.3%)
Patient's concern regarding addiction to the pharmacological analgesia given in ED - rating out of 6 Likert scale (n = 196)	1 (1, 3)	21.4% (15.9 - 27.8%)
Of patients who reported adverse effects to their pharmacological analgesia (n = 39/196 = 19.9% (confidence intervals 14.5 - 26.2%) rating out of 6 Likert scale the likelihood they would avoid this medication in the future.	4 (2, 4)	51.2% (34.8 - 67.6%) (of the 39 that had reported side effects)

Table 1 Descriptive statistics for clinical outcomes and patient perceptions on analgesia. NPRS = numerical pain rating scale 0 - 10, IQR = interquartile range. Categories for the Likert scales: 1 = 'very' unsatisfied / unagreeable / unconcerned / unlikely; 2 = 'un'-satisfied etc; 3 = 'slightly' unsatisfied etc; 4= 'slightly' satisfied etc; 5= 'satisfied' etc; 6 = 'very' satisfied etc. Notes: *16 documented refusals of offered analgesia, [#] in 52 cases doctor order time not noted and [^]88.2% gave a yes response before providing Likert range quoted here.

	Satisfied ($\geq 4/6$ Likert)	Very satisfied	Patients taking opioids $\leq 4/24$ prior to ED	Patients receiving opioids in ED	Patients willing to use non-pharmacological	Patients willing to use acupuncture
	OR (CI) P	OR (CI) P	OR (CI) P	OR (CI) P	OR (CI) P	OR (CI) P
N (%)	183 (93.9%)	103 (52.8%)	48 (24.5%)	113 (57.7%)	166 (84.7%)	135 (68.9%)
Very Satisfied (reference = not very satisfied)	N/A	N/A	0.90 (0.48 - 1.74) p=0.77	1.07 (0.60 - 1.89) p=0.82	1.84 (0.83 - 4.07) p=0.13	1.02 (0.56 - 1.87) p=0.95
Age 18-29	1	1	1	1	1	1
Age 30-49	3.11 (0.58 - 16.80) p=0.19	4.26 (1.20 - 15.02) p=0.02 (multivariable - adjusted)	2.42 (0.63 - 9.32) p=0.20	1.57 (0.57-4.34) p=0.39	0.46 (0.09 - 2.27) p=0.34	1.52 (0.53 - 4.32) p=0.43
Age ≥ 50	3.03 (0.69 - 13.20) p=0.14	4.67 (1.40 - 15.48) p=0.01 (multivariable - adjusted)	2.00 (0.55 - 7.28) p=0.29	3.96 (1.48 - 10.58) p=0.01 (multivariable - adjusted)	0.61 (0.13 - 2.87) p=0.54	1.37 (0.52 - 3.59) p=0.53
Gender (reference = female)	8.44 (1.05 - 67.44) p=0.04 (multivariable - adjusted)	1.47 (0.83 - 2.59) p=0.19	0.52 (0.26 - 1.02) p=0.06	0.87 (0.49 - 1.54) p=0.64	0.40 (0.18 - 0.90) p=0.03	0.57 (0.31 - 1.04) p=0.07
Adverse effects (reference = nil)	0.47 (0.13 - 1.66) p=0.24	0.81 (0.40 - 1.64) p=0.57	1.68 (0.78 - 3.60) p=0.18	1.86 (0.88 - 3.93) p=0.11	0.99 (0.38 - 2.62) p=0.99	1.65 (0.73 - 3.73) p=0.23
Concern for addiction to pharmacological analgesia administered in ED ($\geq 4/6$) (reference = no concern)	1.35 (0.28 - 6.44) p=0.70	1.73 (0.85 - 3.52) p=0.13	0.65 (0.28 - 1.52) p=0.32	0.43 (0.21 - 0.89) p=0.02 (multivariable - adjusted)	2.76 (0.80 - 9.60) p=0.11	1.58 (0.72 - 3.48) p= 0.25
Achieved 'adequate analgesia' (reference = not achieved)	6.76 (0.84 - 54.12) p=0.07 (multivariable - adjusted)	3.92 (2.06 - 7.45) p=0.00 (multivariable - adjusted)	1.36 (0.70 - 2.62) p=0.36	0.87 (0.49 - 1.57) p= 0.65	0.70 (0.32 - 1.54) p=0.38	1.00 (0.54 - 1.86) p=1.00

Table 2: Associations for satisfaction, opioid usage, non-pharmacological methods preference versus age, gender, analgesia side effects and concerns for addiction. OR = odds ratio from univariable or multivariable logistic regression (latter marked 'adjusted'), CI = 95% confidence interval, 'adequate analgesia' = triage pain score reduced by ≥ 2 and to a level < 4 . Note where values associated with p values < 0.05 these are marked in bold and shaded.