Audit of Pain Management in The Emergency Department

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SUMMARY

Pain management in Malaysian Emergency Departments has not been studied well. Convenience sampling was used to recruit 402 patients who presented with acute pain over a 2-week period. The 11-point Numerical Rating Scale was used to quantify pain. Pain relieving medications were prescribed to 178 patients (44.3%) in the Emergency Department. These patients had a median pain score of 7 on arrival. Non-steroidal anti inflammatory drugs were the most commonly prescribed class of analgesic. Pain was found to be inadequately treated.

INTRODUCTION

Pain is one of the commonest complaints among patients presenting to the Emergency Departments (ED)[1]. Pain management is the process of providing medical care to alleviate pain. Inadequate pain relief and poor treatment in pain management in ED was highlighted by Wilson and Pendleton and they coined the term oligoanalgesia to describe this phenomenon[2]. They found that only 44% of patients with pain received analgesics in the ED, and sub-therapeutic dosing was common. In year 2008, Ministry of Health of Malaysia issued a circular letter to promote the implementation of 'pain as the fifth vital sign' in an attempt to improve pain management in hospitals nationwide[3]. A critical pathway of holistic pain management was adapted from various international sources to be implemented in Malaysian EDs in the same year. However, lack of research and poorly implemented management guidelines cause ineffective pain management in ED. Other factors that lead to the persistence of oligoanalgesia include ethnic, cultural and gender biases, working environment in ED, prejudice against opioid use, attitudes and educational limitations in pain management[4].

OBJECTIVE

The objective of this study was to assess the pain management in ED in terms of the prescription practice of pain relieving medications, pain progression and adequacy of pain relief.

MATERIALS AND METHODS

This was a prospective observational study conducted in the ED of Universiti Kebangsaan Malaysia Medical Centre (UKMMC) over a period of two weeks, following the approval of UKMMC Ethics Research Committee. Investigators were divided into two three-membered teams, collecting data on specified shifts daily. Patients who were 18 year-old and above presenting to the ED triage counter with acute pain of less than three months were invited to participate in this study. Patients with communication difficulties or unable to complete the survey for any reason, patients in life threatening condition and patients with altered mental status were excluded.

Inform consent was obtained prior to conducting the interview. A standardized questionnaire was used to collect information from patients. The 11-point Numerical Rating Scale (NRS) was used to assess the pain intensity. Patients were asked to rate their pain from 0 to 10. Patients' pain score will be assessed at specific intervals (on arrival, 30 minutes and 60 minutes post pain relieving medications, and upon disposition). The site of pain and prescription of pain relieving medications were recorded. Statistical analysis was performed using SPSS version 13.

In this study, medications which are not classified under analgesics, but confer pain-relieving effect in specific conditions were classified as other pain-relieving medications including antispasmodics (hyoscine), gastric protectors (H2 antagonists, magnesium trisilicate and proton-pump inhibitors) and vasodilators (glyceryl trinitrate).

RESULTS

A total of 402 patients were recruited during the study period, of which 235 were male and 167 were female. Trauma-related injuries consist of 47.3% of pain cases seen. Table I illustrates the distribution of pain sites according to pain etiologies. There were 289 patients who had not taken any pain relieving medications before arriving at the ED. One or more pain relieving medications were prescribed to 178 patients in the ED while 224 patients were not. Upon disposition, 263 patients (64.8%) were prescribed pain-relieving medications. Patients with acute pain that received pain-relieving medication mostly received only one type of medication during ED stay or upon discharge (Table II).

The pain relieving medications most often prescribed (in 39.1%) in the ED was non-steroidal anti-inflammatory drugs (NSAIDS (Table III). Opioids (pethidine, morphine) and tramadol were also commonly used. As for the pain relieving medications prescribed upon patients' disposition, NSAIDs remained the most commonly prescribed medication (36.4%), followed by acetaminophen and tramadol.

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Table I: Distribution of pain site according to etiology

Site	Etiology			
	Trauma		Non-trauma	
	n	%	n	%
Abdomen	4	2.1	104	49.1
Chest	6	3.2	20	9.4
Back	22	11.6	19	9.0
Head & neck	21	11.1	20	9.4
Upper limb	55	28.9	8	3.8
Lower limb	56	29.5	26	12.3
Genitalia & perineum	1	0.5	9	4.2
Multiple Sites	25	13.2	6	2.8
Total	190	100	212	100

Table II: Percentage of patients receiving one, two or three pain relieving medications during ED stay and upon disposition

No. of medications prescribed	During ED stay (%)	Upon disposition (%)
1	146 (82)	151 (57)
2	27 (15)	89 (34)
3	5 (3)	23 (9)
Total	**178 (100)**	**263 (100)**

Table III: Prescription rates of pain relieving medications

Class	Prescribed in ED n (%)	Prescribed upon disposition n (%)
NSAIDs	84 (39.1)	155 (36.4)
Opioid	36 (16.7)	-
Tramadol	36 (16.7)	77 (19.4)
Paracetamol	14 (6.5)	99 (27.4)
Local anaesthesia	1 (0.5)	-
Gastric protector	32 (14.9)	59 (14.8)
Antispasmodic	6 (2.8)	8 (2.0)
Vasodilator	6 (2.8)	-
Total	**215 (100)**	**398 (100)**

Pain scores at specific intervals were recorded and comparisons of median pain scores were made. In patients who were prescribed pain relieving medications, the median pain score showed a significant decreasing trend, from NRS of 7 on arrival to 3 upon disposition. (Table IV) However, the median pain score of patients who did not receive pain-relieving medications remained the same. The majority (75.3%) of patients who were prescribed pain-relieving medications achieved a desirable relief upon disposal. (Table V)

DISCUSSION

The pattern of distribution of pain sites differ in trauma-related cases and non trauma-related cases. Pain in trauma-related cases was mainly distributed in the upper limbs and lower limbs. Abdominal pain predominates in non trauma-related cases. Overall, the most common site of pain among the patients in this study was the abdomen, followed by lower limbs and upper limbs. The pattern of distribution of pain sites in our study were similar to other studies on the same topic [5, 6].

Pain progression from arrival to disposition of patients in this study was determined by assessing the change in pain score. Increased pain was defined as change in pain score of +2 or more. Stable pain was defined as a change in pain score between +1 to -1, while decreased pain was defined as change in pain score of -2 or more. This classification was adopted from two French studies[6, 7]. As the NRS pain score data collected is an ordinal data the median is the most appropriate method to interpret and describe the changes for pain in this study rather than the mean. A reduction in pain score of two points is considered significant.

The most prescribed class of analgesics in this study was NSAIDs, in particular diclofenac sodium and ketorolac. Opioid analgesics, such as morphine and pethidine, were also commonly used in the ED, particularly in patients with severe pain (NRS >7). The most commonly prescribed class of analgesia upon patients' disposition was NSAIDs. The options for oral analgesics on disposition in our ED are limited to NSAIDs, paracetamol and tramadol. The initial pain score of patients may have influenced the choice of a pain relieving medication in this study.

Table IV clearly shows that patient who received pain-relieving medications had significant reduction in pain, as compared to those who did not receive pain-relieving medications. The inadequacy in evaluation and treatment of pain in the ED has been well documented in various studies[8, 9, 10]. Less than half (44.3%) of the patients in this study were prescribed analgesics while they were in the ED. However, this rate of prescription in the ED was comparable to the 30% to 63% rate from other studies[10, 11, 12].

The majority of patients who did not receive any medication on arrival or while in the ED suffered moderate pain (median NRS 5). This may have influenced the perception of healthcare providers on the need for analgesia as patients may not appear to be in suffering or the patient can still cope without medication. This observation may actually raise a red flag or a warning sign that the ED staff is becoming tolerant to patients suffering pain. This warrants a review of the attitude and awareness of ED staff towards the importance of adequate pain management for all patients in the ED. A better designed, more comprehensive and focused research on ED pain management is required in the near future.

LIMITATIONS

Due to the limited number of investigators, some patients who fulfilled the study criteria were missed and not recruited into the study. This study did not assess the waiting time to receive pain relieving medications in the ED, which is an important aspect of pain management. Furthermore, the presence of investigators during the study period may lead to treatment bias by the ED personnel.

CONCLUSION

NSAID was the most prescribed pain relieving medication in the ED of UKMMC. The administration of pain-relieving medications in the ED was associated with significant pain reduction upon disposition. However, pain was still inadequately treated.

REFERENCES

1. Ducharme J. Acute pain and pain control: state of the art. Ann Emerg Med 2000; 35(6): 592-603.
2. Wilson J.E, Pendleton J.M. Oligoanalgesia in the emergency department. Am J Emerg Med. 1989; 7(6): 620-23.
3. Pekeliling Ketua Pengarah Kesihatan Bilangan 9 Tahun 2008 Perlaksaan Tahap Kesakitan sebagai Tanda Vital Kelima (Pain as Fifth Vital Sign) di Hospital-hospital Kementerian Kesihatan http://ckpp.moh.gov.my/v2/uploads/pekeliling_pain.pdf
4. Fosnocht DE, Swanson ER, Barton ED Changing Attitudes about Pain and Pain Control in Emergency Medicine. Emerg Med Clin N Am 2005; 23: 297-306.
5. Daoust R, Beaulieu P, Manzini C, Chauny JM, Lavigne G. Estimation of pain intensity in emergency medicine: A validation study. Pain. 2008; 138(3): 565-570.
6. Tcherny-Lessenot S, Karwowski-Soulié F, Lamarche-Vadel A, Ginsburg C, Brunet F, Vidal-Trecan G.. Management and Relief of Pain in an Emergency Department from the Adult Patients' Perspective. J Pain Symptom Manage. 2003; 25(6): 539-46.
7. Karwowski-Soulié F, Lessenot-Tcherny S, Lamarche-Vadel A, Bineau S, Ginsburg C, Meyniard O, Mendoza B, Fodella P, Vidal-Trecan G, Brunet F. Pain in an emergency department: an audit. Eur J Emerg Med. 2006; 13(4): 218-24.
8. Ducharme J, Barber C. A prospective blinded study on emergency pain assessment and therapy. J Emerg Med. 1995; 13: 571-75.
9. Tanabe P, Buschmann M. A prospective study of ED pain management practices and the patient's perspective. J Emerg Nurs. 1999; 25:171–177
10. Fosnocht D.E, Swanson E.R, Bossart P. Patient expectations for pain medication delivery. Am J Emerg Med. 2001; 19: 399-402.
11. Selbst S.M, Clark M. Analgesic use in the emergency department. Ann Emerg Med. 1990; 19(9): 1010-13.
12. Lewis L.M, Lasater L.C, Brooks C.B. Are emergency physicians too stingy with analgesics? South Med J. 1994; 87(1): 7-9.