A RANDOMISED CONTROLLED TRIAL OF THE EFFECT OF DISPLAYED PAIN SCORE ON ANALGESIC ADMINISTRATION IN ADULT TRAUMA PATIENTS AT THE EMERGENCY DEPARTMENT OF KUALA LUMPUR HOSPITAL

by

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LIST OF ABBREVIATIONS

AHCPR	Agency for Health Care Policy and Research in US
ED	Emergency Department
HKL	Kuala Lumpur Hospital
HR	Heart Rate
HUKM	Hospital University Kebangsaan Malaysia
HUSM	Hospital University Sains Malaysia
JCAHO	Joint Commission on Accreditation of Healthcare Organisation
Min	Minimum
Max	Maximum
NRS	Numerical Rating Scale
PEMI	Pain and Emergency Medicine Initiative
STI	Soft Tissue Injury
US	United States
VAS	Visual Analog Score

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ABSTRAK

Kajian mengenai Kesan Mempaparkan Tahap Kesakitan ke atas Penggunaan Ubat Penahan Sakit di kalangan Orang Dewasa yang mengalami Trauma di Jabatan Kecemasan Hospital Kuala Lumpur.

PENGENALAN

Rasa kesakitan kerap dialami oleh pesakit yang mengalami trauma yang mendapat rawatan di jabatan kecemasan. Namum hanya 38 % daripada mereka mendapat ubat penahan kesakitan (Silka *et al.*, 2004). Rawatan rasa sakit kurang diberi kepentingan dibandingkan dengan diagnosis dan rawatan penyakit yang khusus. Bagaimanapun tugas utama seorang doktor adalah untuk merawat dan mengurangkan penderitaan pesakit. Badan JCAHO telah mensyorkan skala kesakitan pesakit diukur dan ditandakan apabila pesakit sampai di triage. Ini adalah untuk meningkatkan mutu perawatan kesakitan pesakit .

OBJEKTIF KAJIAN

Kajian ini bertujuan untuk menentukan sama ada penilaian tahap kesakitan, yang dibuat oleh pesakit sendiri dan dipaparkan dengan jelas untuk dilihat oleh pegawai perubatan, mempengaruhi penggunaan ubat penahan sakit semasa berada di dalam jabatan kecemasan.

KAEDAH

Kajian ini dilakukan mengikut kaedah ujian rawak terkawal (randomized control trial). Seramai 200 pesakit telah dimasukkan ke dalam kajian ini. Mereka yang menyertai kajian ini adalah pesakit trauma yang datang ke triage sekunder dan dirawat di zon hijau di Jabatan Kecemasan Hospital Kuala Lumpur. Hanya pesakit yang sedar sepenuhnya dimasukkan dalam kajian. Skala rasa sakit telah diukur untuk semua pesakit dengan menggunakan skala pengukuran bernombor. Separuh darinya telah dipaparkan dan separuh lagi tidak dipaparkan mengikut randomisasi. Hasil yang diukur adalah peratusan pesakit yang menerima ubat penahan sakit dan jangka masa dari triage hingga menerima ubat menahan sakit .

KEPUTUSAN

Purata ukuran skala rasa sakit adalah 5.7. 15 % mengalami sakit sedikit, 48 % sakit sederhana dan 37 % sakit yang kuat . 26.5 % (53) pesakit menerima ubat penahan sakit. Tidak ada perbezaan yang ketara diantara peratus yang menerima ubat penahan sakit apabila skala kesakitan dipaparkan, 29.7 % berbandingkan 23.2 % bila skala rasa sakit tidak dipaparkan. nila p ialah 0.3 mengikut ujian chi-square. Tahap kesakitan yang berbeza mempunyai hubungan yang ketara dengan menerima ubat penahan sakit. (p=0.007). Tahap kesakitan ini tidak mempengaruhi hubungan skala rasa sakit dan peratusan menerima ubat penahan sakit . Purata masa dari triage hingga menerima ubat penahan sakit adalah 81.3 minit apabila skala rasa sakit dipaparkan dan 88.7 minit

apabila skala rasa sakit tidak dipaparkan. Jangka masa untuk menerima ubat penahan sakit tidak ada hubungan dengan skala rasa sakit.

KESIMPULAN

Mempaparkan skala rasa sakit sahaja tidak mungkin cukup untuk meningkatkan mutu perkhidmatan pemberian ubat penahan sakit di jabatan kecemasan.

ABSTRACT

A Randomised Controlled Trial of the Effect of Displayed Pain Score on Analgesic Administration in Adult Trauma Patients at the Emergency Department of Kuala Lumpur Hospital.

INTRODUCTION

Pain is a common symptom experienced by trauma patients presenting to emergency departments. Yet only 38% of patients evaluated for major trauma received analgesic (Silka *et al.*, 2004). The management of pain is often regarded as less important compared to arriving at diagnosis and treatment proper. Yet a physician's primary duty is to comfort, manage and reduce the suffering of a patient. Documentation of patient's pain score at triage has been recommended by JCAHO as a tool towards improving pain management in the ED .

STUDY OBJECTIVE

The objective of this study was to determine the effect of documentation and display of patients' self assessment of pain using numerical rating scale (NRS) on analgesic use among adult trauma patients at the emergency department at Kuala Lumpur Hospital.

METHOD

A randomized control trial was conducted recruiting 200 trauma patients who presented to the secondary triage and treated in the green zone of the emergency department in Kuala Lumpur Hospital. Only patients who had GCS of 15/15 were included. Convenient sampling was used. Pain score was done using NRS for all patients. They were randomized to have the pain score either displayed prominently in the trial group or not displayed in the control. Outcome measured were proportion of patients receiving analgesic and timing from triage to analgesic administration.

RESULTS

The mean pain score was 5.7. 15 % of patients had mild pain, 48 % had moderate pain and 37 % had severe pain. 26.5 % (53) patients received analgesics. There was no significant difference in the proportion of patients, 29.7 % receiving analgesic when pain score was displayed, compared to 23.2 % when pain score was not displayed. p value was 0.3 by chi-square test. Within the trial group, the severity of pain was significantly associated with receiving analgesic ($p = 0.007$). Severity of pain did not have a confounder effect on the association of displayed pain score and analgesic administration. Mean time to receiving analgesic from triage was 81.3 minutes in the trial sample compared to 88. 7 minutes in the control sample. There was no relationship between pain score and the timing to analgesic.

CONCLUSION

Display of pain score in the absence of other multi-prong intervention can not be enough to improve analgesic administration in emergency department.

1. INTRODUCTION

Pain is a common symptom experienced by trauma patients presenting to emergency departments. Yet only 38% of patients evaluated for major trauma received analgesic(Silka *et al.*, 2004). The importance of pain relief is emphasised by the Royal College of Surgeons and Anaesthetists (1990). "Any failure to relieve pain is both morally and ethically unacceptable". They further highlight, "all patients have a right to pain relief, creating a duty of care". This might seem obvious, even to relatives and friends who accompany a trauma patient to an emergency department. However it may not always seem so, to the busy emergency department doctor.

Doctors tend to concentrate purely on the anatomy and physiology of the disease process, which is encompassed in the bio-medical model of care (Armstrong, 1994). Little attention is paid to pain, and even less to its alleviation . The management of pain is often regarded as less important compared to arriving at diagnosis and treatment proper. Yet a physician's primary duty is to comfort, manage and reduce the suffering of a patient.

Many institutions have realized that pain management is important (Carr, 2001). While pain management intra- and post- surgery is a well established field headed by anaesthetist in this country, acute pain management in emergency department is still in its infancy. There is no clinical protocol or proper guideline for acute pain management in emergency department (Ahmad, 2005) .

Management protocols in many emergency departments throughout the world recommend that the patient's pain score is recorded on triage as one of the vital signs (JCAHO). We were interested to study if this simple intervention would improve the management of pain in the emergency department. Therefore, this study evaluated the effect of pain score assessment and documentation on analgesic use in the absence of any other interventions, such as education on pain management.

The objective of this study was to evaluate the effect of prominently displaying the pain score reported by the patient on analgesic use in the emergency department. This was measured in terms of proportion of patients with pain receiving analgesia as well as the timeliness of the analgesic administration.

2. LITERATURE REVIEW

2.1 Definition of Pain

Pain is defined as an unpleasant sensory and emotional experience associated with actual or potential tissue damage by the International Association for the Study of Pain (IASP, 1979). The IASP does not associate the perception of pain with a stimulus, but emphasises the multidimensional nature of pain, with its emotional, conceptual, judgemental and motivational components (Karcioglu *et al.*, 2005). Notice that there need not even be trauma to cause pain. The very fear of trauma or the very emotional memory of a traumatic event can evoke much pain experience.

2.2 The Understanding of Pain In Clinical Practice

Pain is well recognised as an important symptom of disease, injury or organ dysfunction and has been clinically defined as "suffering, distress, soreness or the sensation felt when hurt and only the sufferer can determine what hurts and what is painful (Duthie , 1994).

2.3 Pathophysiology of Pain

Over the last few years there has been much progress in understanding the pathophysiology of pain and its effect on disease and healing. More importantly, evidence has emerged on the detrimental effect of neglecting pain on disease progression and patient recovery (Silka *et al.*, 2004).

Tissue injury caused by heat, hypoxia, inflammation, or trauma induces inflammatory pain. This injury leads to peripheral stimulation of pain receptors (also called nociceptors) of nonmyelinated C fibers. On the other hand, neuropathic pain occurs when there is direct activation of either sensory nerves or central ganglia by nerve injury or disease. Neuralgic pain differs slightly in that pain is produced by direct nerve stimulation without necessarily causing nerve damage (Ducharme, 2000).

It is important to address pain as patients become increasingly more sensitive to painful stimulus the longer the pain is uncontrolled. Hyperalgesia is the state where a painful stimulus causes more pain than normally expected. With increased irritation, nerve fibers normally not associated with pain sensation are recruited, with nonpainful stimuli now inducing pain. By using these terms to describe pain, we are shifting to a mechanism-based classification away from a disease-based one (Ducharme, 2000). This leads to better understanding of the nature of pain.

2.4 How common is the Presentation of Pain in Emergency Department?

Studies have shown that pain is one of the most common reasons patients visit the emergency department (Selbst and Clark, 1990). More than one-third of all emergency department patients have been reported to have moderate to severe pain (Bonica, 1988). Pain, as a presenting complaint, account for up to 78 % of visits to the emergency department (Cordell *et al*, 2002).

2.5 Evidence of Under Treatment of Pain

Multiple studies have shown that pain is frequently under-treated in emergency departments. Wilson and Pendelton (1989) reported that 56 % of 198 adult patients received no analgesic for a variety of acute painful condition while in the emergency department. Lewis *et al.*, (1994) retrospectively found only 30% of acute fracture patients received analgesic. A prospective study of patients with orthopedic trauma from two Costa Rican emergency departments showed that only 11% of adult patients and 4% of pediatric patients received analgesic (Jantos *et al.*, 1996). In Malaysia, Hisamuddin (2001) showed than more than 70 % of patients were not given adequate pain relief in ED HUSM .

In a prospective study, it was found that opioid analgesics were prescribed to less than one in five ED patients who reported pain as a complaint (Tanabe *et al.*, 1999). Ahmad (2005) showed that 44.8 % of patients in ED HKL had moderate pain on discharge. A multicenter study in US reported that 60 % of patients in pain received analgesic at ED and 74 % of patients were discharged in moderate to severe pain (Todd *et al.*, 2007).

Studies have shown a lack of analgesic administration in up to 70% of patients with acute fracture, and that over 40 % of treated patients waited longer than 2 hours for analgesia (Nelson *et al.*, 2004). This phenomenon was firstly referred to as oligoanalgesia by Wilson and Pendleton (1989).

2.6 Difference in the Perception of Pain among Patients and Physician

There is a gap between how physician and patients perceive pain. It has been shown that physicians as well as other health care providers consistently underestimate patients' pain (Guru and Dubinsky, 2000). In a comparative study done in ED HKL, it was found that there was a significant difference in the mean pain score of patients and doctor (1.19±1.57), and patients and triager (2.44 ± 1.67) where healthcare workers scores were lower. (Ahmad, 2005).

Failure to recognize severity of pain may be because we do not ask the patient (Ducharme and Barber, 1995). Even when we do ask, we often discredit the response, judging that the pain is less than reported, basing this judgment on our past experience of similar problems, even though the patient's pain is most influenced by his or her past (Ducharme, 2000).

However many believe that pain is what the patient states it is and physicians must respect this (McCaffery and Beebe, 1989) The patient's self-report is the most reliable indicator of the presence and intensity of pain (Feraaz *et al.*, 1990). Health care professionals often fail to routinely assess and document pain. Physicians should trust patients' subjective report of pain unless there is evidence to the contrary (Jones and Ramakrishnan, 2005).

Great steps to improving pain and suffering in a patient starts with understanding what pain is to the patient (Ducharme, 2000). We must understand a diverse spectrum of psychological, sociocultural, temporal and situational variables

affects how people perceive and express their pain. Age, sex, ethnicity, accompanying psychiatric problems and economic status of the patient are among the factors that may affect the way individual express his / her complaints. Thus the painful experience becomes a unique phenomenon for each patient (Karcioglu *et al.*, 2005).

Due to the absence of objective measures, the clinician must depend on the patient to supply key information on the localization, quality and severity of the pain. The value of the patients description of the location and nature of the discomfort has been proved in the context of formal teaching and routine practice, though physicians frequently question the reported severity and rely on their own estimates (Perry and Heidrich 1982). As a result, healthcare providers generally underestimate and undertreat patients' pain. It has been found that it is a common practice to withhold analgesic if an alert patient does not ask for painkiller medications. (Karcioglu *et al.*, 2005) .

2.7 Reasons for Oligoanalgesia

Well-described barriers, both psychological and educational, contribute to our providing inadequate pain relief (McGrath and Frager 1982). Health professionals have given many reasons for withholding analgesic, including the risk of adverse effects, the risk of obscuring diagnostic symptoms or signs, concern for nullifying informed consent, and concern about the credibility of the patient's report of pain (Lewis *et al.*, 1994 , Raftery *et al.*, 1995, Wilson and Pendleton, 1989). There is also fear about causing addiction or respiratory depression with the use of opioids. This come from inadequate knowledge about the true incidence of these possible adverse effects and their treatment (Tanabe *et al.*, 1995).