



What are the risks and knowledge deficits for prescribing and administering opioids in the ward environment? A quality project on assessing and improving knowledge



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ABSTRACT

Investigations into Medical Emergency Team (MET) calls and related clinical incident reviews at a large district teaching hospital provided evidence that over sedation can be a significant issue post opioid administration and that safe and effective pain management requires accurate opioid knowledge and patient assessment skills.

The aim of the study was to develop education that was directed at identified knowledge deficits, and to evaluate the impact of this tailored education program on knowledge of safe prescribing and administration of opioids.

Knowledge levels were explored using a structured questionnaire in a pre and post-test design. A convenience sample of 34 nurses and 5 junior medical officers across three surgical wards in a tertiary referral hospital had their knowledge assessed.

Results showed significant improvement when repeat questionnaires were given two weeks post-delivery of education. Mean scores were 68% at baseline and 89% two weeks post completion of the education program. The greatest improvement in scores was recorded for drug knowledge including dose, half-life and administration.

The findings from this study suggest that the opioid education program is effective in improving the knowledge of safe prescribing and administration of opioids, however further studies are required.

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Introduction

Opioids are considered to be the mainstay of systemic analgesia for the treatment of moderate to severe acute pain and when used effectively provide excellent analgesia in many surgical patients (Macintyre et al., 2011). To optimise effective pain management nurses require up to date knowledge and appropriate attitudes regarding pain assessment and pain management (Al-Shaer et al., 2011; Matthews and Malcolm, 2007).

In recent years, educational efforts have targeted health practitioners who treat chronic pain to improve prescribing strategies

(Kaye et al., 2013). Despite this, concerns still remain about the potential adverse effects, particularly on ventilation (Macintyre et al., 2011). Opioid induced ventilatory impairment comprises of a combination of decreased respiratory drive, increased level of sedation and upper airway obstruction (Macintyre et al., 2011). These adverse effects were observed in a number of local Medical Emergency Team (MET) cases, where naloxone and, in more serious cases, ventilatory support was initiated due to over-sedation, aspiration, and raised carbon dioxide levels associated with excessive opiate administration.

Choice of opioid and route of administration have both been highlighted as an important factor when administering opioids. The choice and route of opioid administration is dependent of various factors including presence of pain, severity of pain, and the patient's condition. One of the most important factors when administering opioids is individualising the opioid dose and dosing intervals to provide optimal pain control with minimal side effects (Macintyre et al., 2011; Pasero, 2009).

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Background/literature

Literature reviews show opioid toxicity in the acute pain setting continues to be reported, however estimating the incidence of this occurrence is difficult to determine due to the lack of uniform definitions of respiratory depression (Macintyre et al., 2011). Macintyre et al. (2011) highlighted this list, discussing how some published studies measure opioid toxicity as a decreased respiratory rate, while others measure arterial carbon dioxide levels or oxygen saturation levels or alternatively, requirements for naloxone. Regardless, there appears to be no uniform definition that accurately estimates the incidence of opioid toxicity.

It is generally accepted that intravenous and epidural administration of opioids presents higher risks of opioid toxicity than oral administration. Despite this Cashman and Dolin (2004) described how the incidence of clinically significant opioid induced respiratory depression (<1%) is less in the parental and epidural routes compared to oral administration. This low incidence is likely attributed to increased supervision in terms of documented patient sedation scores, infusion rates, regular patient assessment and frequent review by the anaesthetic pain teams. This level of assessment and specialty follow up simply does not occur on the wards during the general administration of oral or subcutaneous opioids.

Coincidentally, as part of this project all the Medical Emergency Team cases reviewed in 2011 that required naloxone involved patients receiving oral opioids, on occasions in combination with subcutaneous opioids. These patients were less frequently monitored with observations completed on the standard hospital observation charts. This raises the argument that lack of patient assessment, sedation scores and medical review in patients on oral and subcutaneous opioids is why there is a higher incidence of opioid toxicity in these groups even though the route of administration is considered much safer than intravenous or epidural.

Literature has also shown that nursing knowledge and attitudes in pain management has room for improvement (Gaunt et al., 2014). Lewthwaite et al. (2011) implemented a comprehensive survey to assess knowledge and attitudes regarding pain management and concluded that knowledge and attitudes in pain management is lacking. Less than half of respondents achieved a passing score, with pharmacology questions least likely to be answered correctly (Lewthwaite et al., 2011). Gaunt et al. (2014) further explored this issue comparing the opioid knowledge of a group of practitioners across 10 hospitals from 2012 to 2014. On average, in 2012, 59% of questions were answered correctly, with a 6% improvement observed in 2013–2014.

Watt-Watson et al. (2007) further concluded pain education is significantly lacking in health care professional facilities and recommend future studies to examine pre and post-orientation knowledge to assist in evaluation of current educational strategies and assist in developing more informative and practical pain management programs.

Currently, at a local level, formal pain management education programs directed at nursing staff include education pertaining to accreditation in Patient Controlled Analgesia and Epidural Analgesia at the commencement of employment. Education on post-operative pain management is also provided to the ward staff. There is no formally developed pain management educational tool available for the local District's nursing and medical educators to use. Opioid presentations at Junior Medical Officers weekly library education sessions and medical ground rounds are also an infrequent event.

In light of the evidence regarding the limited pain management knowledge and attitude of nursing and medical staff, coupled with the districts lack of educational material, we believed an

investigation into opioid knowledge at a local level would empower nursing and medical staff to improve knowledge level in pain management.

The aim of the study was to develop education that was directed at identified knowledge deficits. Secondly to evaluate the impact of this tailored education program on knowledge of safe prescribing and administration of opioids and make useful recommendations for our local facilities and potentially beyond.

Research design

Study design

The study was a one group pre-test, post-test design in a cohort of nursing and medical staff conducted at a large tertiary referral hospital within the Illawarra. The initial process involved examining current pain management practices by identifying knowledge deficits (pre-test), followed by preparation and delivery of an education program to target these knowledge deficits. A review of the literature related to knowledge and attitudes regarding pain management in hospitalised patients revealed numerous knowledge and attitude surveys.

Participants

A convenience sample of registered nurses and junior physicians from three acute surgical wards was used to conduct the study. Participants included registered nurses with experience in surgical nursing including orthopaedics, urology, and colorectal specialty with a range of experience from new graduate to eight years' experience. The medical officers were relatively junior from interns to residents on a surgical rotation.

Data collection

All participants had 15 min each to complete a pre and post-test questionnaire at their working stations located within each surgical ward and were restricted from using external resources such as books or internet sources to complete the questionnaire.

The questionnaire was developed by the local District Hospital Peer Review Committee taking into consideration key deficits and recommendations highlighted in the local health district's 2010–2011 opioid overdose cases; and existing pain knowledge and assessment questionnaires. Four specific categories were examined with five questions in each category. The questions were grouped into categories as follows: recognising the patients at risk of opioid toxicity; equianalgesic potency and conversion between the different opioids; drug knowledge with understanding of dose, half-life and routes of administration; importance of assessment of the patient before prescribing and administration of opioids and the importance of continued assessment.

Questionnaires were distributed to the medical and nursing staff on the three surgical wards by their respective Nurse Educator. Consent was implied if the health professional chose to complete the questionnaire. All participants remained completely unidentifiable, as the questionnaire was anonymous. Following completion of the pre-test questionnaire participants received a 45 min face to face education program which targeted key issues in the safe prescribing and administration of opioids. The education program was delivered by a Nurse Educator and was centred round the knowledge deficits identified in the pre-test questionnaire.

Two weeks post the education program, participants completed the post-test questionnaire. Completed questionnaires were returned to the working party by the Nurse Educator. Names were not recorded on the questionnaires to ensure confidentiality.

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