

# The effectiveness of pain management methods used at kakamega county teaching & referral hospital, Kenya

## Abstract

Effective managing acute postoperative pain is a major challenge for practitioners, given that more than 80% of patients report pain after surgery, and 75% report the pain as moderate, severe, or even extreme. The American pain Society states that 'In more than half of cases, patients report not receiving adequate pain management following their procedure', which has raised concerns over the development of chronic pain. The objective of the study was to assess the effectiveness of pain management methods used at Kakamega County Teaching and Referral Hospital, Kenya (KCTRH). The study adopted a descriptive cross-sectional study which was carried out KCTRH. The participants in the study included all adult male and female patients who had undergone major surgical procedure within 24 hours post-operative at KCTRH. The target population, (N) is 250. Purposive sampling method was used, meaning that only patients available during the data collection period and meets the inclusion criteria were included in the sample. Majority of the patients interviewed were aged between 31-40 years and most of the respondents were females accounting to 67(61%) of the respondents. All the respondents interviewed were Christians and worked in the informal sector. Most of the respondents 80(73%) reported that painkillers were given through intra-venous. 64(59%) of the respondents were given general anesthesia whereas 45(41%) were given regional block type of anesthesia.

**Keywords:** pain management, effectiveness, post operation

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**Findings:** Post-operative pain management in the first 24 hours is not effective. It is imperative that post-operative pain is adequately managed to alleviate the patients suffering.

**Recommendations:** Development of pain assessment tool, sensitizing the nurses on the need of pain assessment, hospitals should make analgesic available for use by the patients, a similar study to be conducted using a larger sample size to improve generalizability.

## Introduction

There are different approaches of acute pain management in post-surgical procedures. In a study by<sup>1</sup> afferent neural blockade with local anesthetics was found to be the most effective analgesic technique followed by high-dose opioids, epidural opioids and clonidine, patient controlled analgesia (PCA) with opioids, and non-steroidal anti-inflammatory agents. Miller et al.<sup>2</sup> reports the advantages of effective postoperative pain management to include patient comfort, satisfaction, earlier mobilization, fewer pulmonary and cardiac complications, a reduced risk of deep vein thrombosis, faster recovery with less likelihood of the development of neuropathic or chronic pain, and reduced cost of care.<sup>3</sup> Managing acute postoperative pain is a major challenge for practitioners, given that more than 80% of patients report pain after surgery, and 75% report the pain as moderate, severe, or even extreme.<sup>2</sup> The American pain Society (APS) states that 'In more than half of cases, patients report not receiving adequate pain management following their procedure', which has raised concerns over the development of chronic pain as per hypothesis of most scholars.<sup>4</sup> Effective postoperative pain control is an essential component of the care of the surgical patient.<sup>5</sup> Inadequate pain control, apart from being inhumane, may result in increased morbidity

or mortality.<sup>6</sup> The failure to provide good postoperative analgesia is multifactorial. World health organization<sup>7</sup> highlights: Insufficient education, fear of complications associated with analgesic drugs, poor pain assessment, and inadequate staffing as the main bottle necks.<sup>8</sup>

## Objective

To assess the effectiveness of pain management methods used at KCTRH, Kenya.

## Theoretical framework

The World Health Organisation (WHO) concurs that pain remains one of the major reason causing medical consultation worldwide. After numerous recommendations, WHO developed the analgesic ladder as a guideline that physicians could use when developing treatment plans for cancer pain. This therapeutic guideline was adopted and has been in use not only for treatment of cancer pain but also for post-operative management of acute and chronic pain. It guideline categorize patients' pain in term of mild, moderate and severe. The analgesic ladder proposes that treatment of pain should begin with a non-opioid medication. If the pain is not properly controlled, one should then introduce a weak opioid. If the use of this medication is insufficient to treat the pain, one can begin a more powerful opioid. One should never use 2 products belonging to the same category simultaneously. The analgesic ladder also includes the possibility of adding adjuvant treatments for neuropathic pain or for symptoms associated with cancer.

WHO recommends the correct use of analgesics and to make best use of the effectiveness of the prescribed analgesics? Suggestions made by WHO include:-

1. The use of oral of analgesics whenever possible.
2. Analgesics should be given at regular intervals, in accordance with the patient’s level of pain. The dosage of medication should be adjusted until the patient is comfortable.
3. Analgesics should be prescribed according to pain intensity as evaluated by a scale of intensity of pain. The prescription must be given according to the level of the patient’s pain and not according to the medical staff’s perception of the pain.
4. Dosing of pain medication should be metered to the individual requirement therefore pain medications should never be standardized.

$$= 385 / 1 + 385 / 250$$

$$= 385 / 2.54$$

$$= 151$$

### Sampling method

Purposeful sampling method was used, meaning that only patients who were available during the data collection period and met the inclusion criteria. Data collection was by use of structured questionnaire and patient records review. Data analysis was by excel and data presentation was done by frequency distribution table, bar graph, pie chart and histogram. Ethical considerations involved seeking clearance by MMUST IREC and KCTRH Ethical committee. Assumptions made were; all the interviewed patients will tell the truth regarding pain score and residual anesthetics will not impair the patients’ orientation when responding to the questionnaire (Figure 1) (Table 1).

### Methodology

The research design was a cross sectional descriptive cross-sectional and desk review. Target population was all adult male and female who had undergone a major surgical procedure at KCTRH and are within 24 hours post-operative.

The sample size was determined using the Fischer’s formula:

$$N = \frac{z^2 pq}{d^2}$$

N is the desired sample size.

z is the value from the standard; for a confidence level of 95%, z=1.96

p is estimated proportion of the population with desired characteristics

q is the proportion of population lacking the desired characteristics?

d is the desired margin of error; in this case d= 0.05.

Thus,

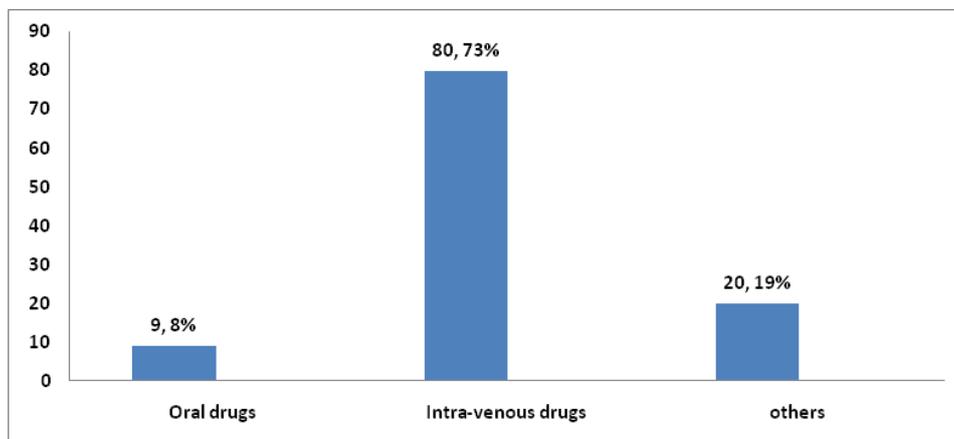
$$N = 1.96^2 (0.5)(0.5) \div 0.05^2 = 385$$

For a population of less than 10000; the sample size is adjusted as follows

$$Nf = \frac{n}{1 + \frac{n}{N}}$$

**Table 1** Frequency distribution table showing the demographic data

Socio-demographic data	Frequency(n=109)	Percentage (%)
Age 18-30	42	38.5
31-40	50	45.8
41-50	17	15.5
Gender: male	42	38.5
Female	67	61.5
Religion: Christian	109	100
Muslim	0	0
Others	0	0
Occupation: Formal	7	6.4
Informal	59	54.1
Unemployed	43	39.4



**Figure 1** Distribution of respondents by route of painkillers given in the past 24hrs.

## Data analysis and results

Majority of the patients interviewed were aged between 31-40 years. Of the 109 respondents, 42(38%) were aged between 18-30 years, 50(46%) were aged between 31-40 years and 17(16%) were aged between 41-50 years. Most of the respondents were females accounting to 67(61%) of the respondents whereas 42(39%) male. All the respondents interviewed were Christians majority of them which makes 59(54%) of the respondents worked in the informal sector, followed by 43(40%) who were unemployed and only a small number of 7(6%) were formally employed (Figure 2). Most of the respondents 80(73%) reported that painkillers were given through intra-venous, followed by 20(19%) who reported to be given through other means while a small number of 9(8%) reported to be given orally (Figure 3). 64(59%) of the respondents were given general anaesthesia whereas 45(41%) were given regional block type of anaesthesia.

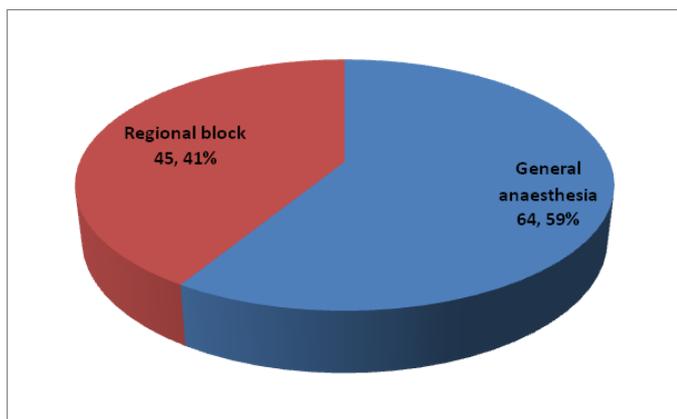


Figure 2 A pie chart showing the type of anesthesia be given.

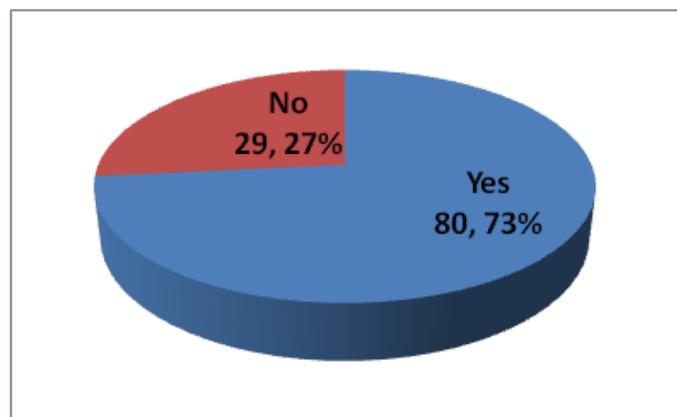


Figure 3 Distribution of respondents by if pain was felt in the 1<sup>st</sup>24hrs.

## Effectiveness of pain management

42(39%) of the respondents reported that their pain was well managed whereas a large number of 67(61%) reported that their pain was not well managed in the first 24 hours (Figure 4). A large number of respondents 80(73%) still reported pain in the first 24 hours whereas

Table 2 A frequency distribution table showing the effectiveness of pain management

Item	n	%
My pain was well managed in the first 24 hours	Yes 42	38.5
	No 67	61.4

29(27%) reported no more pain (Figure 5). Most of the respondents 68(62%) reported severe pain in the first 24 hours, 29(27%) reported moderate pain while 12(11%) reported mild pain (Figure 6). Most of the respondents 45(41%) felt pain always, 34(31%) felt pain sometimes while 30(28%) did not feel any pain (Figure 7). Most of the respondents 79(72%) reported that the available nurse did not ask how painful the pain was, 18(17%) reported that the nurse always asked while 12(11%) reported that the nurse only asked sometimes (Table 2).

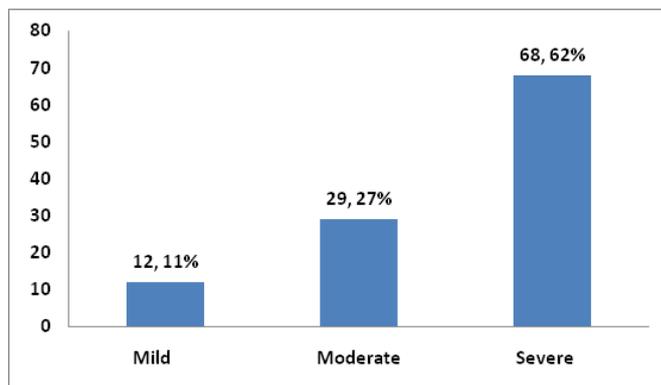


Figure 4 Bar graph showing the nature of pain felt in the 1<sup>st</sup>24hrs.

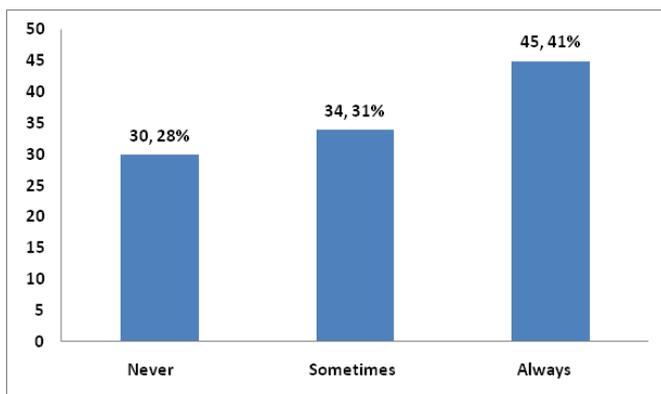


Figure 5 Distribution of Respondents by how often the pain was felt.

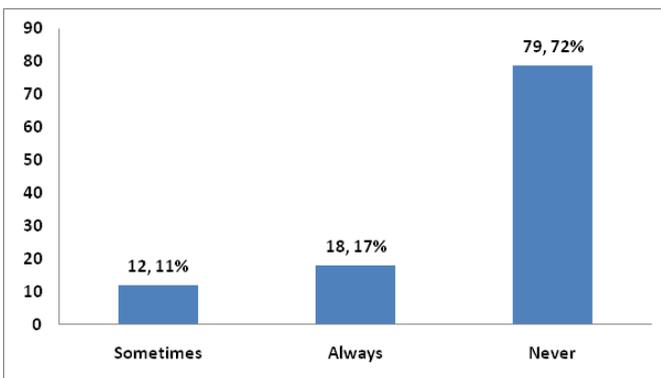


Figure 6 A bar graph showing pain assessments before administration of painkillers.

Table Continued...

Item	n	%
I felt pain in the first 24 hours	Yes 80	73.3
	No 29	26.6
The pain I felt in the first 24 hours was	Mild 12	11
	Moderate 29	26.6
	Severe 68	62.3
How often were you in severe pain in the first 24 hours?	Never 30	27.5
	Sometimes 34	31.1
	Always 45	41.2
Did the nurse find out from you how the pain was before giving you painkiller in the first 24 hours	Sometimes 12	11
	Always 18	16.5
	Never 79	72.4

## Discussion

Most of the respondents were aged between 31-40 years showing a youthful population in which most of them reported severe to moderate pain in the first 24 hour. The relationship between age and pain perception was not established in this study however other studies have revealed that elderly patients reports less pain and that young ones often rate pain higher than anticipated. Most of the respondents were female, majority had no formal employment. All of our respondents were Christians. Gender, attitude, information status and education are often considered indicators of the patient's perception of power. In our study, less pain intensity was reported by the poor and less educated or informed. This finding affirms the fact that these groups of patients are highly vulnerable and therefore needs greater attention.<sup>8</sup> Also noted was the fact that the patients who received regional anesthesia reported low pain incidences than those who received general anesthesia. This is due to the fact that regional block prolongs the analgesic effects several hours after operation. The incidence and level of severity of pain reported in this study is higher than those from most Western and developed countries however a similar study done in china reported a 100% post-operative pain incident. The environment and culture may however explain the variance in the findings of this studies.<sup>9</sup>

Majority of the respondents reported to have received intravenous analgesic in the first 24 hours; this is in line with WHO pain management recommendations. Majority of the patients however believed that the medications administered were not effective with most of them believing that the nurses never assess their pain. Availability of analgesics is also a factor that probably plays a major role in lack of effective pain management. This is because patients are made to buy pain medications and majority are poor and cannot afford effective but expensive drugs. Desk review also revealed lack opioid or stringent control measures that made it difficult for the nurse to administer the prescribed narcotics that are provided by the hospital.

## Conclusion and recommendation

The findings of this study showed that post-operative pain management in the first 24 hours is not effective. It is imperative that post-operative pain is adequately managed to alleviate the

patients suffering. In order to achieve this, the study recommends; development of pain assessment tool, sensitizing the nurses on the need of pain assessment, the hospital should make analgesic available for use by the patients and a similar study to be conducted using a larger sample size to improve generalizability.

## Acknowledgments

None.

## Conflicts of interest

Author declares that there is no conflict of interest.

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