Update in
Anaesthesia

Post-operative pain management at Hospital Nacional Guido Valadares, Dili, Timor-Leste

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Abstract

After decades of turmoil Timor-Leste is re-building its healthcare system. Resource limitations are severe. Opiates are unavailable on the wards and used sparingly in theatres. Minimal staff training, inadequate medication supply and cultural acceptance result in poor pain management. This audit examines post-operative pain management in 85 patients thought reasonably to require post-operative analgesia. Despite medication being charted 20 patients (24%) received no post-operative analgesia, (before review). This group had a mean verbal numeric pain score of 5.8+/-2.2, median 6, range 2-9. Thirty-four patients (41%) received some of their charted analgesics. This group had a mean pain score of 5.1+/-2.2, median 5, range 1-9. The remaining 31 patients received their analgesics as charted and, unsurprisingly, had the lowest pain scores, mean 4.3+/-2.3, median 4, range 1-8. No patient received prn analgesia. More than 40% of patients reported pain scores greater than 5, with 15% reporting pain scores of 8 or 9. Forty-seven patients (55%) were unsatisfied with their pain relief. Fifty-one patients (60%) received additional analgesia as a result of review. Despite cultural expectations Timorese patients would welcome additional post-operative analgesia. To achieve this there are significant hurdles to overcome in training, drug availability and attitudes towards pain relief.

INTRODUCTION

Following decades of occupation, warfare and political turmoil The Democratic Republic of Timor-Leste became a sovereign nation in 2002. In the years immediately prior to this virtually all the country's infrastructure was damaged. Government institutions were destroyed or ceased to function. The health sector was no exception. The country had few trained doctors or nurses. Hospitals and Health Centres were run down, poorly funded and many simply unstaffed. Government revenue was, and remains, minimal. Timor-Leste is reported to spend less than any other country on healthcare with only 2.4% of government revenue reserved for health.[1] Post-independence the government urgently needed medical officers and large numbers of medical students were sent to Cuba for training . This has been a mixed blessing. Cabral et al in their article stress that such scaling up of numbers is not in itself enough . Junior medical staff require ongoing training. These medical graduates have come back with minimal clinical experience and receive limited or no mentorship on their return. High quality nursing staff are also in desperately short supply. The standard of nurse training is low. Opiates are unavailable on the ward. Discussion with staff suggests there is an unrealistic fear of the dangers of opioid use, in particular respiratory depression and addiction. Tramadol, paracetamol and ibuprofen in various combinations are the backbone of post-operative analgesia. Unfortunately anecdotal clinical observation also suggests there is an unrealistic fear of the consequences and frequency of paracetamol overdose, with the standard adult dose charted as 500mg tds. Medications are frequently not administered so patients are not only under prescribed but miss doses as well. All this leads to poor post-operative pain management. However it is within the current capability of the Hospital Nacional Guido Valadares (HNGV) to improve on this situation. It is with this in mind and a view to teaching and decreasing the level of unnecessary suffering that the following audit of post-operative pain management in HNGV was undertaken.

METHODS

Over a 3 month period, (following institutional approval), consecutive general, urological, gynaecological and orthopaedic patients 17 years and older were selected for review of their post-operative pain management. Patients were selected pre-operatively on the basis that their surgery was thought reasonably likely to require post-operative analgesia. Emergency and elective cases were included but each patient was only reviewed once. There was no upper age

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limit. Patients were not selected for a single anaesthetist or surgeon, i.e. all patients were eligible for review regardless of the anaesthetist or surgeon. The caring anaesthetist recorded details of the anaesthesia and analgesia given intra-operatively. In recovery patients were asked to verbally rate their pain (0 being no pain at all, 10 being worst pain imaginable). The result was recorded by recovery staff as soon as practicable on arrival and then again immediately prior to departure for the ward. On the first post-operative morning between 10 and 12 o'clock a single observer (author) visited each patient on the ward with a local medical officer interpreter. The latter varied depending on the day. Each patient had a record kept. This comprised basic demography, the procedure, the nature of anaesthesia, (spinal vs general), details of duration and analgesics given in theatre and recovery, pain score in recovery and details about post-operative analgesics charted. The following morning each patient was attended as above. They were again asked to verbally rate their pain on a numeric scale between 0-10. Patients were also asked if they were satisfied with their pain relief and if they would like more pain relief. The patient's ward chart was also inspected to see if they had been administered analgesics as charted, this was corroborated with the patient and staff where possible. Where appropriate results are reported as mean +/- standard deviation.

RESULTS

Eighty-five patients were reviewed; 47 males,38 females. The mean age was 36.4 +/- 16.6 years. 48 patients were general surgical, 12 orthopaedic, 14 urological, 10 gynaecological and 1 maxillofacial. Table 1 contains the operative procedures. Operative time was recorded for 49 cases; mean 105+/-50mins.

Forty cases (47%) were performed under spinal anaesthesia. Of these 5(12.5%) used intrathecal fentanyl. Thirteen spinals (32.3%) required supplementation with intravenous ketamine and 4(10%) were converted to general anaesthesia.

Forty-five cases were performed under general anaesthesia with all but 4 using fentanyl. The mean fentanyl dose was 102.8+/-38.5mcg. Rarely did a patient receive a second dose of intra-operative fentanyl. Thirty-two (80%) of the general anaesthetic cases were given intravenous morphine. The mean morphine dose was 6.1+/-3.5mg. Thirteen cases reported lignocaine infiltration into the surgical wound.

Overall the mean analogue pain score on arrival in recovery was 3.3+/-2.6. For patients post spinal anaesthesia mean recovery pain score was 2.4+/-2.5. For patients post general anaesthesia recovery pain score was 4.2+/-2.5. Thirty-six patients (42%) received analgesia in recovery. Twelve received morphine, mean dose 5.8+/2.8mg. Twenty-three received tramadol, of which 95% was 100mg intramuscularly. Prior to ward discharge the overall mean pain score was 3.0+/-2.1.

On review the following morning overall mean pain score was 5.0+/-2.2, median 5, range 1-9. Table 2 contains the frequency distribution of pain scores. More than 40% of patients reported pain scores greater than 5, with 15% reporting pain scores of 8 or 9.

Of the patients post spinal anaesthetic mean pain score the next day was 4.7+/-2.2, median 5, range 1-9. For patients post general anaesthetic mean pain score was 5.2+/-2.2. As a result of review 17(43%) of the post-spinal anaesthetic patients 17(43%) and 28(62%) of the post general anaesthetic patients were given additional pain relief.

No patient was given prn analgesia prior to review. Table 3 shows next day pain scores for patients given their analgesics either as charted, partially or not all. It was observed that many patients were fasted 6 hours post-operatively, whether they needed it or not. Additionally in the face of nausea nursing staff were frequently observed to withhold analgesia but not provide alternative pain relief. Both these situations led to further incidences of missed oral analgesics.

Overall 47 patients (55%) were unsatisfied with their post-operative pain relief. Fifty-one (60%) received additional analgesia as a result of post-operative review.

DISCUSSION

This is one of the first papers involving direct clinical observation of acute care patients to come out of Hospital Nacional Guido Valadares (HNGV). Its completion was challenging. Patients and staff were unfamiliar with the research process and required education, encouragement and reassurance. Additionally, as has been known for many years and highlighted by many authors, pain, its expression and treatment are heavily influenced by culture. Peacock and Patel summarize this: "A cultural group's expectations[4,5,6] and acceptance of pain as a normal part of life will determine whether pain is seen as

Table 1: Operative Procedures

Procedure	Count
Appendicectomy	19
Laparotomy	14
Major Open Urological	14
Miscellaneous	9
Major ORIF Lower Limb	8
Abdominal Hysterectomy	5
Open Inguinal Hernia	5
Open Cholecsytectomy	4
ORIF Upper Limb	3
Mastectomy	2
Thoracotomy	1
Thyroidectomy	1

Table 2: Pain Score Day One Frequency Distribution

Pain Score Day 1	Frequency
1	3 (3.6%)
2	13 (15.5%)
3	8 (9.5%)
4	13 (15.5.%)
5	13 (15.5.%)
6	10 (11.9.%)
7	11 (13.1.%)
8	8 (9.5.%)
9	5 (5.9.%)

Table 3: Pain score day one vs Analgesic Medication Given As Charted

Charted Analgesic Medication Given	Pain Score Mean+/-StDev	Pain Score Median, Range	Extra analgesia Given on review
No	5.8+/-2.2	6, 2-9	85%
Partially	5.1+/-2.2	5, 1-9	85%
Yes	4.3+/-2.3	4, 1-8	65%

a clinical problem". Further they suggest, "The relationship between pain and ethnicity is shaped by experience, learning and culture". The comparatively recent experience of the Indonesian occupation,[7] the war of resistance and the violence around independence and again in 2006 mean that nearly everyone in Timor-Leste has a story; everyone has suffered and acceptance of pain as a part of life is commonplace. The incidence of post-traumatic stress disorder amongst the general population is reported to be high.[8,9] All this manifests itself in the attitudes of patients and staff at HNGV towards pain.

However, this is just part of the background to the cultural approach to pain in Timor-Leste. Medical personnel are held in high esteem and there is a significant power imbalance between patients and staff. Interpreters were able to provide several comments in this regard. Examples include "They (patients) are afraid that you will keep them in hospital," or "They do not want to ask in case they get in trouble" or "They do not want to appear weak". Similarly nursing staff when requested if they could provide more analgesia for a patient would frequently state, "They have already had pain relief", as if to say a single dose of analgesia was all the patient required and would last the entire post-operative period. The observed common practice of fasting patients post-operatively, and withholding analgesia in the presence of nausea led to further incidences of missed oral analgesics. Overall these factors combined to produce the impression that patients in general under-reported the degree of pain they were experiencing. Even so more than half the patients reported being unhappy with their post-operative analgesia and 60% received additional pain relief as an outcome of their review.

Spinal anaesthesia is the first option for anaesthesia at HNGV. It is cheap and requires minimal equipment. In recovery these patients did marginally better from a pain perspective than those who underwent general anaesthesia. This trend appeared to continue through to the following day. However this likely reflects the nature of the surgery performed under spinal rather than the nature of the anaesthesia. For example lower limb fractures etc can be performed under spinal and are likely to be better tolerated post-operatively than major laparotomies, or cholecystectomy which require general anaesthesia. A third of spinals required supplementation with ketamine towards the end of the procedure and a tenth were converted to general anaesthesia. These findings suggest that spinals are potentially being used in situations where a general anaesthetic may be more desirable.

Within operating theatres opiate use was sparing. Regardless of the length, size or nature of the procedure 100mcg of fentanyl was the standard dose. This suggests there is little titration of opioid to the clinical circumstances. For those undergoing general anaesthesia the mean morphine dose was 6mg. Plain bupivacaine is not available at HNGV. Lignocaine infiltration of the surgical wound was a relatively new concept and employed sparingly. Forty-two percent of patients received analgesia in recovery but only 14% received morphine. Intramuscular tramadol was the recovery analgesic of choice. For those in severe pain post-operatively intravenous opioids would likely be a better choice.

Once patients left recovery and returned to the wards opiates were unavailable. On the one hand this indicates what can be achieved, managed or maybe just tolerated with tramadol and paracetamol, and some ibuprofen. On the other hand it reflects on the likely unmet need for strong analgesics on the ward. One in seven patients reported pain scores of 8 or 9. The frequency of tramadol use was surprising as it represents a more expensive option than most opioids.

The biggest finding was the frequency with which patients were receiving no analgesia whatsoever on the ward. "As required" analgesia is also a concept that is not embraced. This may be due to perceived powerlessness amongst nursing staff and/or lack of education. Nearly a quarter of patients received no analgesia post-operatively. The causes of this are complex. Some are attitudinal and educational as discussed above, some are a failure in nursing care standards and finally some are logistic. Getting medication to the ward is unnecessarily complex; the wards do not hold impress and have to procure medication from pharmacy for each patient. Sadly all the above are common in low to middle income countries.

At HNGV the responsibility for prescription of post-operative analgesia rests with the surgical team. Doses prescribed are often low and inappropriately infrequent, for example the observed standard charted adult paracetamol dose is 500mg tds. Provided this is given it is probably better than nothing. However as the local experts it would seem appropriate that anaesthetic staff take over responsibility for prescribing post-operative analgesia.

Myles et al suggest that a visual analogue pain scale of 33 or less on a 100mm scale signifies acceptable pain after surgery.[10] There is no immediately apparent reason to suggest that verbally reported pain scores should be any different. The mean pain score on review here was 5.0, with 71% of patients reporting pain scores in excess of 3. Fifty-five% of patients reported being dissatisfied with their pain relief. Given the likely cultural bias towards underreporting this figure is at least comparable and provides some vindication of the accuracy of the findings.

In its simplest interpretation this audit highlights that patients given analgesia have less pain than those who aren't given analgesia. So what potentially can be done to improve the delivery of analgesia? Paracetamol, ibruprofen and morphine are all relatively cheap. Nursing staff are available. Surgical and medical staff are present and operating. As highlighted by Morriss and Roques "there is a treatment gap (in low to middle income countries) between what could be done and what is actually being done. Because of this gap, there are many opportunities

to dramatically improve pain management using simple, cost-effective strategies."[11] This is the case at HNGV. All the elements for improved post-operative pain management are present but they do not translate into better analgesia for patients. Potential recommendations for improvement might include:

1) Education of resident medical and nursing staff on the importance of pain relief, dispelling unrealistic fears associated with analgesic use and instruction on the appropriate dosing regimens of common analgesics; in particular changing from paracetamol 500mg tds to 1gm qid for normal sized adults.
2) Improved processes for impress on the wards
3) Anaesthetic staff to have a lower threshold for increased opiate use in theatre and recovery
4) Anaesthetic staff to take over prescription of post-operative analgesia
5) Education regarding the unnecessary practice of post-operative fasting
6) Daily post-operative pain rounds by the anaesthetic team.

The institution of such measures is not easy but even some progress will decrease the amount of unnecessary suffering amongst Timorese patients at HNGV. The International Association for the Study of Pain (IASP) has called 2018 the Global Year of Excellence in Pain Education.[12] It is hoped that conduct of this audit has been an educational opportunity for at least some of the staff at HNGV and opened the door for change. Visiting International teams have an educational role to play in this regard as well. Attention to post-operative analgesia and education on post-operative pain by visiting surgical teams will go some way to combatting culturally held myths at HNGV and help provide a lasting legacy in the form of improved pain management for the people of Timor-Leste.

The standard of post-operative pain management at HNGV is low. The findings presented here suggest approximately 70% of patients are experiencing a level of post-operative pain greater than that recommended as acceptable.[10] Despite cultural expectations the results indicate that Timorese patients would welcome additional post-operative pain relief. The capacity for improvement is there with significant hurdles to be overcome in training, drug availability and general attitudes towards post-operative pain relief.

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