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PATIENT CONTROLLED ANALGESIA (PCA) USING NON-OPIOID ANALGESICS AFTER PRIMARY THYROID SURGERY – AN ENDOCRINE SURGICAL UNIT EXPERIENCE

General Surgery

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ABSTRACT

Background: Pain is an inflammatory response that leads to the release of various inflammatory mediators results in systemic inflammatory response syndrome as well as appropriate wound healing.
In the context of patient's recovery and wound healing an adequate pain control plays a major role in post-operative management. The routine prescription of analgesics for duration of 5-7 post-operative days without adequate pain assessment is a common surgical practice in India. The usage of too much analgesia especially Opioid based has its own side effects as well as it adds more financial burden to patients. Hence, the analgesic needs to be prescribed appropriately as per the clinical situation with patient involvement rather than routinely.
Aim of the study: To evaluate the efficacy and clinical use of single dose of analgesia Diclofenac sodium 100mg in the form of rectal suppositories during the early post-operative period(first hour after extubation) and thereafter when required basis based on patient visual analogue scoring (VAS) during the post-operative period in patients undergoing primary thyroid surgeries in our surgical unit.
Materials and Methods: A prospective study was performed over a period of two years (August 2015 – September 2017). The study population patients were educated pre operatively regarding the Visual analogue score and their psychometric response in the post-operative period were recorded. All the surgeries were performed by a single endocrine surgeon in a private referral center. The study included all primary thyroid surgeries and redo thyroidectomies and total thyroidectomy with neck node dissections were excluded from the study. The post-operative psychometric response of the patient were recorded thrice daily for one week. The analgesic requirement and the VAS were reviewed prospectively.
Results: A total of 170 thyroid surgeries were performed. Of which, 120 were included in the study and the rest were excluded on the basis of exclusion criteria. Among 120 cases, 20 were male and 100 were female patients (male: female = 1: 5) and the age range from 25 years to 54 years. There were 76 total thyroidectomy and 46 hemi thyroidectomy procedures. A total of 11 out of 120 patients (9.1 %) required additional variable doses of simple oral analgesics.
Conclusion: Our study has shown that primary thyroid surgeries does not require routine intense dose of analgesics during post-operative period. Single dose of analgesia can be very effective in post-operative pain control and additional doses can be added as per the need of the patient and this proved to be satisfactory, cost effective and also avoids analgesic induced side effects.

KEYWORDS

1. INTRODUCTION

Neck pain after thyroid surgery believed to significant especially in the early post-operative hours. The management of post-operative pain is a critical component of patient care and is associated with improved patient satisfaction and postoperative outcomes after any surgery especially thyroid surgery. We hypothesized that the appropriate usage of simple NSAIDS might influence the immediate post-operative pain scores and reduces the analgesic requirement as well as length of patient stay in hospital. The use of NSAIDs does not increase wound bleeding after thyroid and parathyroid surgery[1].

2. MATERIALS AND METHODS

A prospective study was performed over a period of two years (August 2015 – September 2017) in a tertiary care surgical center. The study was approved by the Institutional Ethical committee. The study patients were educated pre operatively with the Visual analogue score and its usage.

All the patients received a single dose of Dexamethasone 4mg IV and Paracetamol IV infusion per-operatively. Diclofenac sodium100mgm were placed per rectally within 1 hour after the extubation.

The psychometric response during the post-operative period was recorded and the analgesia was prescribed according to the patient's requirement. The post-operative psychometric response of the patient were recorded serially thrice daily for one week.

All the data were prospectively collected.

All primary total thyroidectomy and hemithyroidectomy were included. Other surgeries like redo thyroidectomies, completion thyroidectomies and neck node dissections were excluded.

The primary end point of the study was to evaluate the efficacy and clinical use of single dose of simple analgesics and the effectiveness of patient controlled analgesia. The secondary end points were to evaluate the feasibility on short hospital stay after thyroidectomy.

Written and informed consent were obtained from all the patients before the day of surgery. The study was approved by the local ethics committee.

Statistical analysis:

The statistical tests were run on a compatible personal computer using the Statistical Package for Social Scientists (SPSS) for windows 15.

RESULTS

A total of 170 thyroid surgeries were performed. Of which, 120 were included in the study. There were 20 male and 100 female patients (male: female = 1: 5) and the age range from 25 years to 54 years. There was no significant co morbidity. There were 74 total thyroidectomies and 56 hemi thyroidectomies. Surgical drain (Romovac 12 F drain without suction) was used in a total of 15 patients and all removed within 24 hours. All patients were allowed liquid diet within 6 hours and PTH levels were measured appropriately.

Table 1 (needs tabular column)

Procedures	Numbers
Total thyroidectomy	74
Hemi thyroidectomy	46

Table 2 Needs tabular column

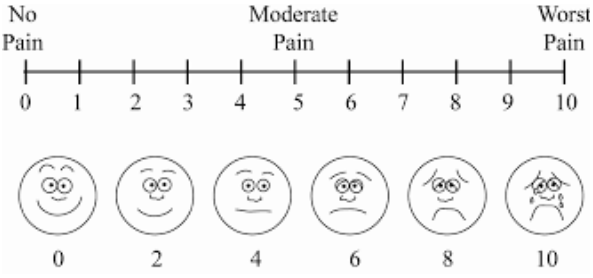
Final histology	Numbers
Benign pathology	48
Grave disease	10
Toxic MNG	8
Malignancy (PTC, FTC)	32
Diagnostic HT	22

Among the 120 cases, only 11 (9.1%) patients needed additional doses of oral analgesics in the form of paracetamol 1 Gms up to a maximum of four doses.

Of these 11 patients, 3 patients required further 4 doses of analgesia and 5 patients needed 2 doses and the other 3 one extra dose only. Significant gradual reduction of pain noted from the visual analog scores during early post-operative time with single dose of analgesics in the form of diclofenac suppository.

Most of the patients (100/120) were discharged within 48 hours after the surgery and all the patients were reviewed on 7th post-operative day for histology and review of Visual analogue score.

VAS used in our study



Numerical rating scale of VAS

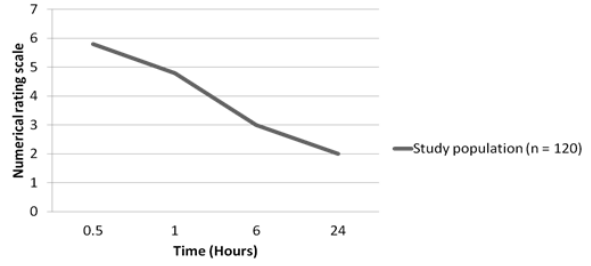


Fig-1. Numerical rating scale at 30 min, 1, 6 and 24h after the surgery. This chart shows decrease in pain with time.

DISCUSSION

The effective relief of pain is of the utmost importance to anyone treating patients undergoing surgery. Pain relief has significant physiological benefits; hence, monitoring of pain relief is increasingly becoming an important postoperative quality measure. The goal for postoperative pain management is to reduce or eliminate pain and discomfort with a minimum of side effects. Various agents (opioid vs. non opioid), routes (oral, intravenous, regional) and modes (patient controlled vs. "as needed") for the treatment of postoperative pain exist. Although traditionally the mainstay of postoperative analgesia is opioid based, increasingly more evidence exists to support a multimodal approach with the intent to reduce opioid side effects (such as nausea and ileus) and improve pain score.

The World Health Organization and International Association for the Study of Pain have recognized pain relief as a human right(4). Poorly managed postoperative pain can lead to complications and prolonged rehabilitation.[5] Uncontrolled acute pain is associated with the development of chronic pain with reduction in quality of life.(6). Appropriate pain relief leads to shortened hospital stays, reduced hospital costs, and increased patient satisfaction. As a result, the management of postoperative pain is an increasingly monitored quality measure.

Higher postoperative pain levels can be associated with lower quality of care.[7]

The gold standard is the patient's self-assessment done routinely after surgery to measure the efficacy of pain management. Several scoring tools are available but a 10-point pain assessment scale, where 1 is no pain and 10 is the worst possible pain imaginable, has been nationally accepted. The key to adequate pain control is to reassess the patient and determine if he or she is satisfied with the outcome.

The concept of continuous intravenous and subsequently of patient-controlled analgesia (PCA) came into practice in the 1970s.[8,9] Morphine, hydro morphine, and fentanyl can be administered through the PCA pump. This method of analgesia requires special equipment and gives patient better autonomy and control over the amount of medication used

Several studies suggests that PCA is an efficacious alternative to conventional systemic analgesia when managing postoperative pain.[10]

Opioid-sparing methods using different analgesic mechanisms of action is recognized as an important component for postoperative pain management. Nonsteroidal anti-inflammatory agents (NSAIDS) are useful in reducing the amount of opiates administered to the patient thus reducing opioid side effects.[11]. They are useful in mild to moderate levels of pain. NSAIDs act by inhibiting the enzyme cyclooxygenase (COX) thereby blocking the production of prostaglandins resulting in an anti-inflammatory response.

Post-operative neck pain and discomfort following thyroid surgery is believed to be common and it is probably due to incision and dissection of the soft tissues, oro-tracheal intubation and the hyper extended neck position. These result in discomfort in the form of pain at the surgical site, neck pain and shoulder pain.

Patients undergoing thyroidectomy are at high risk for nausea and vomiting due to edema and inflammation on the neck soft tissues and parasympathetic impact through vagus, recurrent laryngeal and glossopharyngeal nerves to the vomiting centre[2],[3]. So usage of Opioid based analgesia further increases the risk nausea, vomiting which are undesirable after thyroid surgery.

The utilization of PCA in head and Neck surgery is not a new concept in surgical practice. A study by Cannon CR in published in 1991 described successful usage of Opioid based intravenous PCA for patients undergoing head & neck surgery.(12). However there are not many studies described the effectiveness of usage of non-opioid analgesia (NSAIDS) for the post-operative pain control after thyroid surgery.

Most patients undergoing thyroidectomy do not usually experience significant pain for a prolonged period of time. Basto et al.[1] showed that pain scores fell markedly between 24 and 36 hours after surgery. The study also showed that, the pain intensity significantly reduced 24 hours after surgery. The study also suggests that, an increased dose of analgesics may be needed during the early postoperative period[1].

We believed that intense analgesia using non-opioid drugs during early post-operative period followed by patient controlled analgesia using visual analogue score would provide efficient pain control without compromising patient care and outcomes. A non-steroidal anti inflamatory drug of Diclofenac sodium in the rectal suppository form was preferred because of its potent analgesics property as well as less side effects with the PR route.

Our study results further consolidate the previously published similar studies that, an intense analgesia during early post-operative period followed by tailored approach is very effective in pain control without compromising the patient comfort and recovery. This approach to the pain control proved to cost effective also.

This regimen of pain control not only adequately controls the neck pain and reduces the duration of hospital stay. Of course this type of patient controlled analgesia might not be possible for every patients undergoing thyroid surgery as it requires patient knowledge and active patient participation in the pain management process.

In conclusion, patient controlled analgesia with non-opioid analgesics does play role in selected group of patients after thyroidectomy and could be considered as an viable option.

REFERENCES

1. Basto ER, Waintrop C, Mourey FD, Landru JP, Eurin BG, Jacob LP. Intravenous Ketoprofen in thyroid and parathyroid surgery. Anesth Analg 2001; 92: 1052-7.

2. Fukuda H, Koga T. Stimulation of glossopharyngeal and laryngeal nerve afferents induces expulsion only when it is applied during retching in paralysed decerebrate dogs. Neurosci Lett 1995; 193:117-20.
3. Grelot L, Barillot JC, Bianchi AL Activity of respiratory related oropharyngeal and laryngeal motoneurones during fictive vomiting in the decerebrate cat. Brain Res 1990; 513: 101-5.
4. Brennan F, Carr D B, Cousins M. Pain management: a fundamental human right. Anesth Analg. 2007;105(1):205–221.
5. Kehlet H, Holte K. Effect of postoperative analgesia on surgical outcome. Br J Anaesth. 2001;87(1):62–72
6. Kehlet H, Jensen T S, Woolf C J. Persistent postsurgical pain: risk factors and prevention. Lancet. 2006;367(9522):1618–1625.
7. Gunningberg L, Idvall E. The quality of postoperative pain management from the perspectives of patients, nurses and patient records. J Nurs Manag. 2007;15(7):756–766.
8. Keeri-Szanto M, Remington B. Drug levels on continuous intravenous infusion. Lancet. 1971;2(7724):601.
9. Evans J M, Rosen M, MacCarthy J, Hogg M I. Apparatus for patient-controlled administration of intravenous narcotics during labour. Lancet. 1976;1(7949):17–18.
10. Hudcova J, McNicol E, Quah C, Lau J, Carr D B. Patient controlled opioid analgesia versus conventional opioid analgesia for postoperative pain. Cochrane Database Syst Rev. 2006;(4):CD003348.
11. Lowder J L Shackelford D P Holbert D Beste T M A randomized, controlled trial to compare ketorolac tromethamine versus placebo after cesarean section to reduce pain and narcotic usage Am J Obstet Gynecol200318961559–1562., discussion 1562
12. Cannon CR. etal , Patient controlled analgesia in head and neck surgery. Otolaryngology Headneck surgery.1990 Nov;103 (Pt 1):748-51