

## A Prospective Observational Study on Post Operative Pain Assessment in Arthroscopic Surgery

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**ABSTRACT:** Pain assessment has a major role in relief of the of the post operative pain. In this study, we aimed to examine the effect of pain and its management after arthroscopic surgery. Post operative pain in arthroscopic surgery can be delayed the discharge, increase the cost of stay, decrease the patient satisfaction. To reduce the post operative pain multi-modal analgesia should be administered. Arthroscopy is a procedure for diagnosing and treating joint problems. Arthroscopic surgery is a low risk procedure with less complications. Pain was assessed based on pain scale. For this study, numerical rating scale was used. Pain should be assessed on movement only. The study population was consisted of 100 patients who had arthroscopic surgery. The study concludes that multi modal analgesia produced excellent quality of analgesia in patient who underwent arthroscopic surgery.

**KEYWORDS:** Arthroscopic surgery, Multi-modal analgesia, Numerical rating scale, Pain, Pain assessment, Pain management, Postoperative pain

### I. INTRODUCTION:

In this study pain assessment involved the patients who had undergone arthroscopic surgery. An arthroscope, an endoscope placed into the joint through a small incision, is used during arthroscopy, a minimally invasive surgical procedure, to examine the joint and occasionally treat damage. During ACL reconstruction, arthroscopic operations can be carried out. Conditions treated with arthroscopy includes loose bone fragments, damaged or torn cartilage, inflamed joint linings, torn ligaments, scarring within joints. Risk involved in arthroscopic surgery are tissue or nerve damage, infection, blood clots. During the procedure various types of anesthesia are given they includes local anesthesia, regional anesthesia, general anesthesia. Types of arthroscopic surgery: 1) Knee arthroscopy. 2) Shoulder arthroscopy. 3) Hip Joint arthroscopy. 4)

Ankle arthroscopy. Arthroscopy is most commonly used on the knees.

The goal of health care interventions is increasingly seen to be effective pain control (1). Anyone caring for patients undergoing surgery places the highest priority on providing appropriate pain treatment. Monitoring pain alleviation is increasingly relevant as a postoperative quality indicator since it has considerable physiological effects. The goal of postoperative pain management is to reduce or eliminate pain and discomfort while having as few side effects as possible (2). Postoperative pain is not merely bothersome or uncomfortable. When improperly managed, it can occasionally progress to chronic pain. Acute pain is felt after surgery-related tissue damage and should go away throughout recovery. Up to three months are typically needed for this before the pain is deemed chronic or persistent (3). Each patient's experience of pain is unique and multifaceted. Different biological responses, psychological states, and personality qualities affect how people experience pain differently (4). Healthcare practitioners have a fundamental duty to prevent and treat postoperative pain (5). Patients express worry about pain following surgery (6). Patients are more likely to experience chronic or persistent postsurgical pain as a result of the intensity and length of their pain, which leads to longer-term psychological, social, and economic hardship (4).

After surgery, multimodal analgesia enhances pain management. To reduce opioid use and enhance pain management, the American Society of Anesthesiologists advises using multimodal pain regimens (7). Combinations of opioid and nonopioid prescriptions, regional and local anaesthesia, and non-pharmacological therapy are used in multimodal pain management. Both surgical pain and opioid intake should be restricted by an efficient multimodal pain management regimen. Treatment regimens for arthroscopic surgery should reduce pain and opioid intake in

order to provide the best possible postoperative care (8). In this study the patients received analgesics are at day of surgery Inj. Tamin (Acetaminophen) 1g 3 times a day, Inj. Ketorolac 30 mg twice a day, Buvular patch (Buprenorphine), Inj. Butrum (Butorphanol) 1 mg. At the day after surgery T. Acton OR (Acetaminophen) 1 g three times a day, T. Hifenac (Aceclofenac) 100mg twice a day, T. Tydol (Tapentadol) 50 mg twice a day with T. Emeset (Ondansetron). According to the multimodal analgesia principle, effective analgesia can be achieved by carefully combining different analgesic classes that have additive or synergistic effects. This results in lower overall doses of individual medications while simultaneously delivering greater pain relief and a concurrent decrease in complications related to opioid use (9). NSAIDs, COX-2 inhibitors, Alpha 2 agonists, glucocorticoids, N-Methyl-D-aspartate antagonists, and opioids are among the analgesics frequently utilized in multimodal analgesia. Orthopedics has been shown to significantly reduce direct medical expenditures when multimodal analgesia regimens are used appropriately (10).

Assessment and timely response are the foundation of effective pain management. The gold standard for evaluating acute pain is a self-reporting subjective pain scale that enables patients to express their suffering on a one-dimensional scale of numbers or words. The visual analogue scale, verbal rating scale, and numerical rating scale are frequently used to assess pain severity and are valid, reliable, and appropriate for use in monitoring postoperative pain in patients who are able to self-report (11). Unidimensional scales, however, fall short of properly describing the patient experience, for instance, in terms of their capacity to tolerate pain or the effects it has on functional recovery. Postoperative discomfort frequently extends beyond the surgical site to other areas, such as the injection sites or the painful throat that follows tracheal intubation (12). The entire pain experience needs to be assessed. Although one strategy is for patients to mark where they are in pain on body maps and record their unique pain scores for each spot, this is not practicable for the many pain evaluations needed in the postoperative setting. The Brief Pain Inventory and other multidimensional measures are not validated for use in the postoperative situation when treating patients with chronic pain. The assessment of pain during the perioperative period may be improved by newer methods, but further research is necessary. One such tool is the Clinically Aligned Pain Assessment tool, which

directs clinical dialogues to cover comfort, change in pain, pain control, functioning, and sleep (13). The most frequently used tools are one-dimensional, concentrating on just one or two components of pain, most often the intensity of pain and on occasion the location of pain using a body diagram, which allows the patient to mark where the pain is on an outline body diagram. Location, severity, quality (throbbing, stabbing), onset, duration, and variability of the pain, as well as factors that exacerbate or alleviate it, are all included in the assessment of pain (14). Adult Numerical Rating Scale (NRS), Visual Analog Scale (VAS), Defense and Veterans Pain Rating Scale (DVPRS), and other pain assessment instruments are available. Instructions for the Numerical Pain Rating Scale: The patient is asked to rate their current, best, and worst levels of pain from the previous 24 hours. The patient's 24-hour pain history was represented by the average of the three scores (15). A Visual Analogue Scale (VAS) is a measurement tool used to attempt to quantify a characteristic or attitude that is thought to span a range of values and is difficult to measure directly. A VAS typically functions as a horizontal line with word descriptors anchored at each end, measuring 100 mm in length. The point that the patient feels best captures their perception of their current condition is marked on the line. The VAS score is calculated by taking a millimeter-long measurement from the line's left end to the patient's marked location (16).

## II. METHODOLOGY:

**STUDY DESIGN:** A prospective observational study was conducted in a major trauma care centre under department of orthopaedics and plastic surgery to analyse the postoperative pain assessment in arthroscopic surgery from the time of admission between February 2022 to July 2022.

**STUDY LOCATION:** Ganga Medical Centre and Hospital, Coimbatore.

**STUDY POPULATION:** Sample size – 100

**DURATION OF STUDY:** 6 months

**SOURCE OF DATA:** Patient case file.

**PARAMETERS INVOLVED:** Pain Score

**STUDY CRITERIA**

**INCLUSION CRITERIA:**

- Patients who underwent arthroscopic surgery.

**EXCLUSION CRITERIA:**

- Patients who are having conservative management.

**STUDY PROCEDURE:** The data's includes: patient demographic details, diagnosis, procedure, nerve block, analgesics, sedatives, pain score, sleep status, ambulation, nausea and vomiting, and constipation. Pain was assessed based on numerical rating scale. A person rates their pain on a scale of

0 to 10. Zero means no pain and 10 means the worst possible pain. In order to determine the patient's level of pain, we asked to them to shift positions so we could evaluate their facial expression. Thus, the pain score was assessed and documented.

**III. RESULT:**

Table 1:

GENDER	MALE	FEMALE
NO. OF PATIENTS	74	26

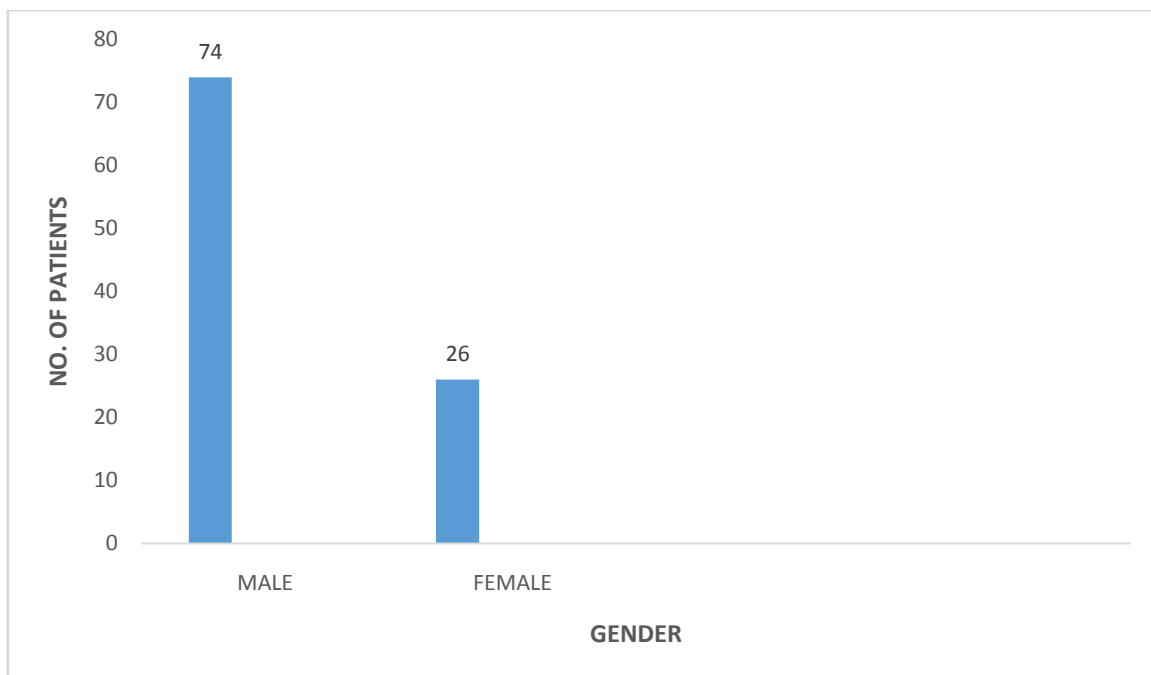


Table 2:

AMBULATION	ACTIVE PAIN	PASSIVE PAIN	NO PAIN
NO. OF PATIENTS	90	9	1

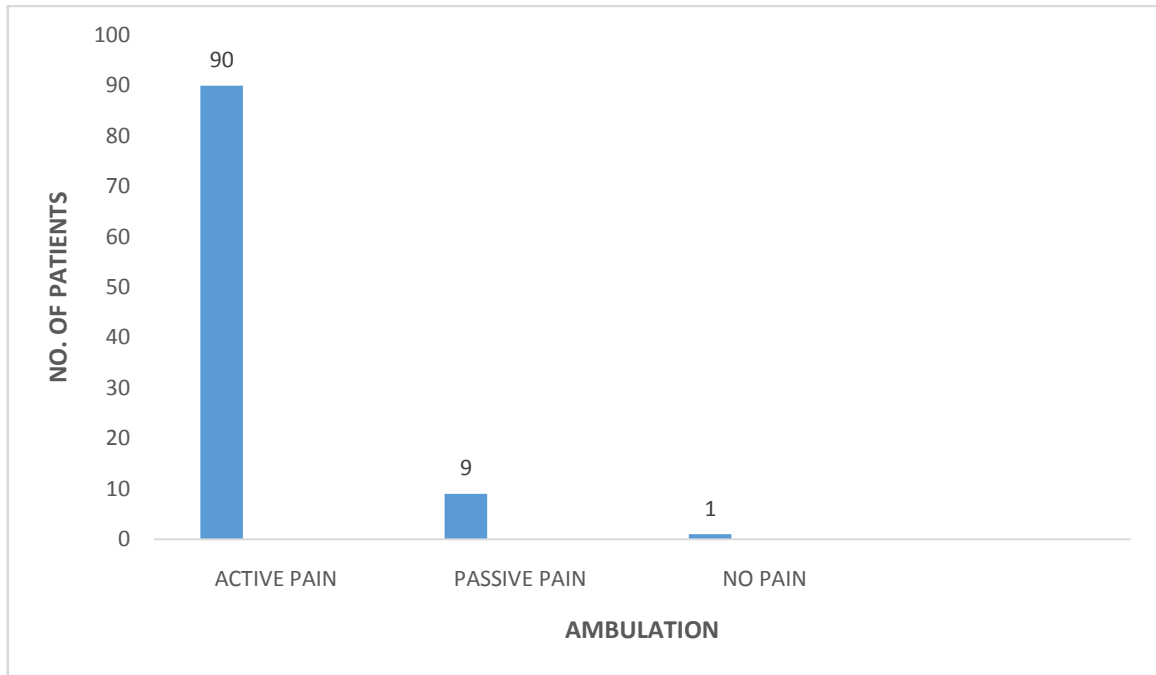


Table 3:

SLEEP	ADEQUATE SLEEP	INADEQUATE SLEEP
NO. OF PATIENTS	92	8

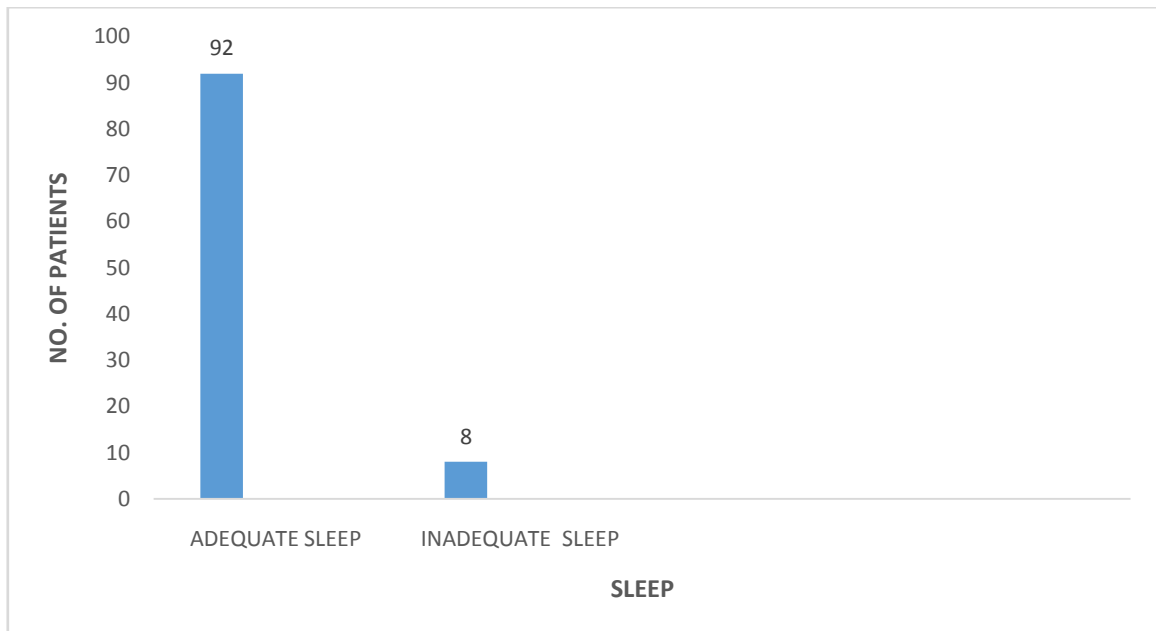


Table 4:

NAUSEA AND VOMITING	PRESENT	ABSENT
NO. OF PATIENTS	0	100

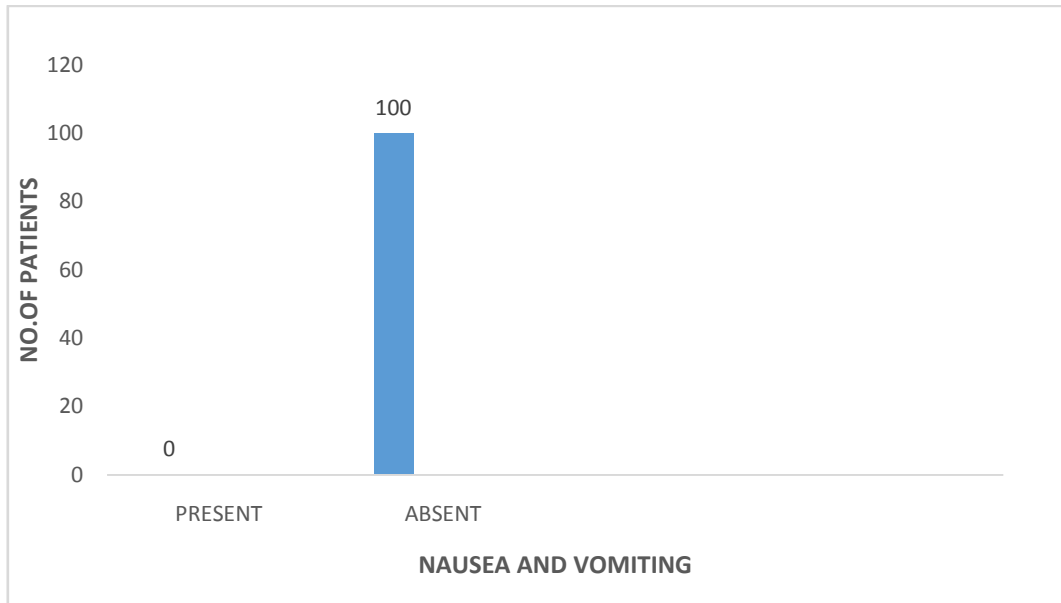
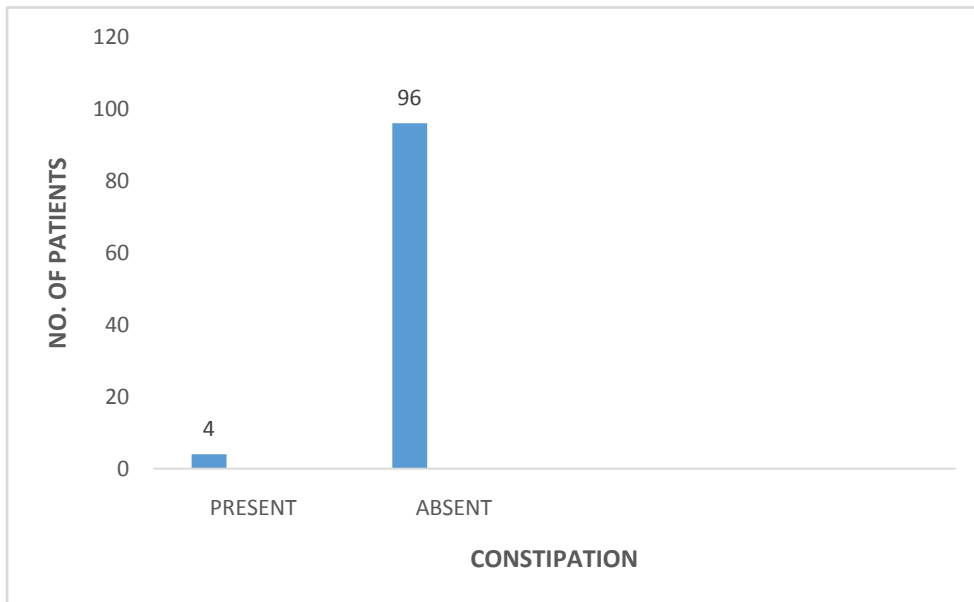


Table 5:

CONSTIPATION	PRESENT	ABSENT
NO. OF PATIENTS	4	96



#### IV. DISSCUSSION:

The study population consisted of 100 patients who had arthroscopic surgery. The routine pain assessment was conducted to the patients and also observed ambulation, sleep status, nausea and vomiting, and constipation. For this study nerve block, analgesics and sedatives are noted.

On the basis of gender (Table 1), 74 male patients and 26 female patients underwent

arthroscopic surgery. Recent studies have revealed that men get shoulder dislocations at a rate that is almost 2.8 times higher than that of women (17). Studies on experimental pain and chronic pain reveal that women experience more pain than men do. (18).

90 patients had active pain (Table 2), 9 patients had passive pain and 1 patient haven't had pain on ambulation. Pain would be more intense when

moving than when it is at rest, and this would result in different pain outcomes (19).

From the observation (Table 3) of the patient's sleep status 92 patients had adequate sleep and 8 patients had inadequate sleep. Patients who underwent arthroscopic surgery frequently complained of sleep difficulties afterward without having their sleep metrics corrected by six weeks postoperatively (20). For this study the majority of patients got adequate sleep first day of after surgery with the Benzodiazepines.

No patients have reported nausea and vomiting (Table 4). Usually, between 25 and 30 percent of people have nausea or vomiting after general anesthesia. Each hospital's anesthesiologists experienced significantly different rates of nausea and vomiting, and the variations could not be attributed to variations in the patients they treated. As a result, we discovered that the prevalence of this widespread issue was persistently high as seen from the perspective of the patients in the time period immediately preceding the release of newer antiemetic medications (21). Out of 100 patients (Table 5), 4 patients had constipation but they are not prescribed with laxatives. The use of painkillers frequently results in constipation (22).

## V. CONCLUSION:

This study indicates multimodal analgesia including regional anaesthesia produced excellent quality of analgesia in patient who underwent arthroscopic surgery. Because of the good pain relief we also noticed that sleep cycle was not disturbed.

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