

**POSTOPERATIVE PAIN MANAGEMENT AFTER PRIMARY TOTAL KNEE
ARTHROPLASTY**

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ABSTRACT

Background: Patients with advanced cases of osteoarthritis or rheumatoid arthritis of the knee often choose for total knee arthroplasty (TKA) as a means of pain relief. Post-TKA pain may range from mild to severe, which can negatively impact recovery, patient satisfaction, and overall results. **Objective:** In this study our main goal is to evaluate the Postoperative Pain Management After Primary Total Knee Arthroplasty. **Method:** This cross sectional study was carried out at the tertiary hospital from June 2021 to December 2021. A total of 100 Patients were recruited at the time of admission for surgery. Written informed consent was taken from each patient and approval was obtained for administration of a telephonic questionnaire three months and one year after the surgery. **Results:** During the study, majority were belonging to 47-57 years age group, 60%.70% had pain surgical site followed by 40% had arching type of pain and 80% had pain score was 2-3. 55% cases used regional anesthesia type followed by 90% used NSAIDS, in addition, 70% cases were satisfied with Postoperative acute pain service. **Conclusion:** Although PPSP is a documented negative consequence of TKA, its incidence in LMICs is unknown. Postoperative pain after TKA might be managed with a modest dose of opioids followed by NSADIS by the third postoperative day if the same analgesic regimen were used.

KEYWORDS: Total Knee Arthroplasty (TKA), anesthesia, Postoperative Pain Management.

INTRODUCTION

Among the primary concerns of surgical patients is the possibility of experiencing unpleasant discomfort after the procedure. Pain that isn't treated after surgery may have negative physiological repercussions and increase morbidity.^[1] Negative psychological and social repercussions, as well as an increased financial burden, might result from this kind of pain persisting indefinitely.^{[1],[2]} Pain that occurs after a surgical intervention and lasts for three months or more when other sources of pain have been ruled out is referred to as persistent post-surgical pain (PPSP) or chronic post-surgical pain.^{[2],[3],[4],[5]} Multiple recent studies.^[6,7,8,9,10] have shown the high frequency of chronic pain after a variety of surgical procedures.

The volume and complexity of procedures are on the rise in most LMICs^[11], thanks in large part to recent initiatives to promote safe surgery and anaesthesia there. This rise in incidence suggests that PPSP will be seen more often in the future.^[11] A good example of this trend

is the rising popularity of total knee arthroplasty (TKA) in low and middle-income countries. Statistics from industrialized nations demonstrate that pain and function improve for the majority of TKA patients in the weeks after surgery, although a significant minority may suffer with PPSP.^[12] Persistent pain after total knee arthroplasty (PPSP) may be avoided by taking precautions during the perioperative phase, hence it is crucial to determine the true incidence of PPSP, identify high-risk patients, and implement these measures early on. Further study is needed to provide methods for enhancing post-TKR care and results.^[13]

In this study our main goal is to evaluate the Postoperative Pain Management After Primary Total Knee Arthroplasty.

OBJECTIVE

- To assess the Postoperative Pain Management After Primary Total Knee Arthroplasty.

METHODOLOGY

It was a prospective cross-sectional study. Approval was obtained from the institution’s Ethics Review Committee (ERC). The study was conducted at the tertiary hospital from June 2021 to December 2021. A total of 100 Patients were recruited at the time of admission for surgery. Written informed consent was taken from each patient and approval was obtained for administration of a telephonic questionnaire three months and one year after the surgery. Pain assessment method using verbal numeric rating scale (NRS) of 0 - 10, where 0 referred to no pain and 10 referred to worst imaginable pain, was explained to the patients by the pain nurse. Patients’ contact numbers and information about a suitable time to call them were obtained at the time of recruitment. All patients undergoing elective unilateral total knee replacement under general or regional anaesthesia during the six-month study period were included. A formal

sample size assessment was not performed. Patients having a revision TKR or those with a history of chronic pain at other sites or taking regular analgesics were excluded, as were those with a known history of psychiatric problems or those having a language barrier.

RESULTS

In table-1 shows age distribution of the study group where majority were belonging to 47-57 years age group, 60%. The following table is given below in detail:

Table 1: Age distribution of the patients.

Age group	%
26-36 years	10%
37-47 years	5%
47-57 years	60%
>57 years	15%

In figure-1 shows gender distribution where 65% were female and 35% were male. The following figure is given below in detail:

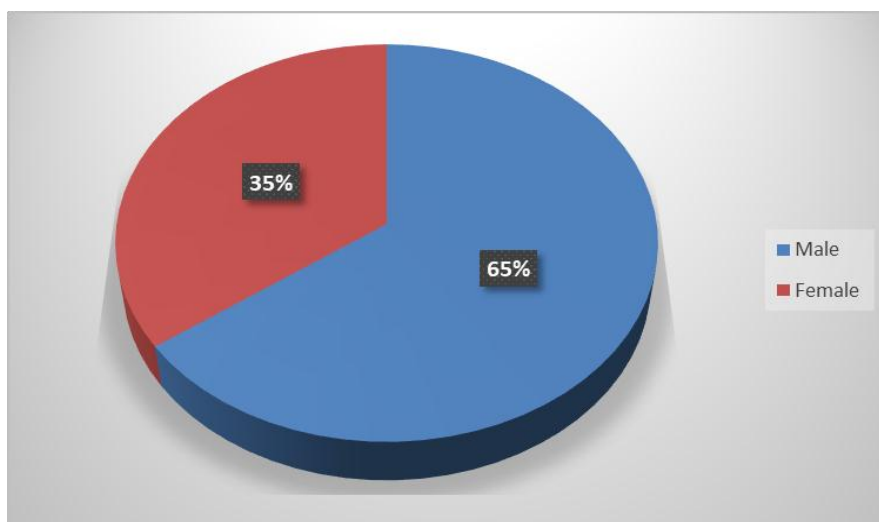


Figure 1: Gender Distribution.

In figure-2 shows distribution of the patients according to occupation where 30% were service holder and 30% were businessman. The following figure is given below in detail:

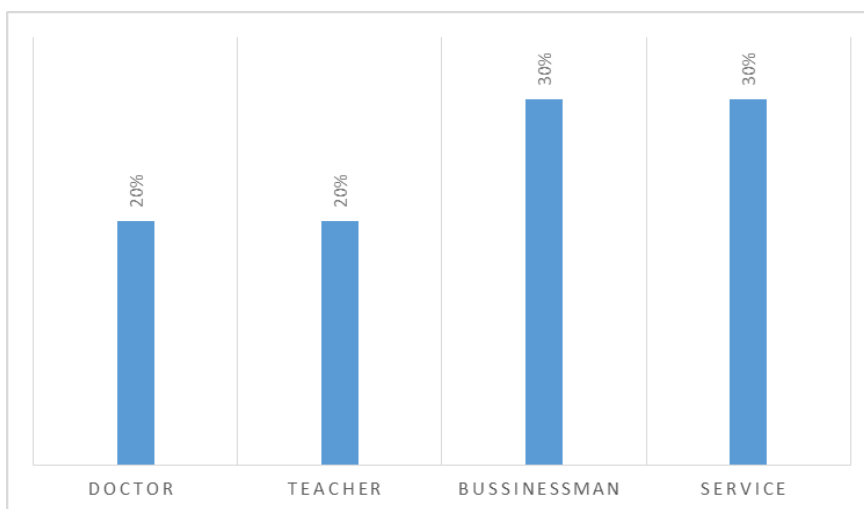


Figure 2: Distribution of the patients according to occupation.

In table-2 shows baseline status of the patients where 66% had history of smoking and 50% were overweight followed by mean PI, DI, KIN, BME were 6.74 ± 1.37 , 46.60 ± 16.67 , 40.55 ± 5.61 , 11.05 ± 8.39 . The following table is given below in detail:

Table 2: Baseline status of the patients.

BMI	%
Underweight	30%
overweight	50%
Obese	20%
Smoking	66%

In table-3 shows Area, type and score of pain three months after total knee arthroplasty where 70% had pain surgical site followed by 40% had arching type of pain and 80% had pain score was 2-3. The following table is given below in detail:

Table 3: Area, type and score of pain three months after total knee arthroplasty.

Area of pain	%
Surgery site	70%
Surrounding Area	30%
Types of pain	%
Arching	40%
Burning	30%
Stabbing	20%
Thrombing	10%
Pain score	%
2-3	80%
4-5	20%

Table-4 shows quantitative factors in patients with persistent pain where 55% cases used regional anesthesia type followed by 90% used NSAIDS, in addition, 70% cases were satisfied with Postoperative acute pain service. The following table is given below in detail:

Table-4: Quantitative factors in patients with persistent pain.

Anaesthesia type	Persistent pain, %
<ul style="list-style-type: none"> GA + Epidural Regional (CSE) 	45%
Intraoperative analgesia Epidural	55%
Paracetamol	60%
<ul style="list-style-type: none"> I.V Opioids NSAIDS 	10%
Postoperative acute pain service Satisfaction with postoperative pain	90%
<ul style="list-style-type: none"> Neutral Satisfied Very satisfied 	15%
	70%
	15%

DISCUSSION

It has been reported that pain severity may plateau at three to six months following TKA^[15] and in some patients, pain improvement can continue up to one year after surgery without them eventually ending up with long-term PPSP.^[16] However, detection of pain three to six months after TKA can enable the physician to take measures to halt its progression into long-term chronic pain and disability by initiating targeted management for the prevention of PPSP.^[17] Werner and Kongsgaard^[18] have proposed that pain should be assessed between three and six months following surgery as this would allow adequate time to assess the functional results of the surgery. Appropriate management and encouragement of the patient at this point would help in preventing disappointment with the surgical outcome and the resulting anguish on the part of the patient.

All the 82 patients who participated in the study received multimodal analgesia for postoperative pain relief, which is the recommended strategy.^[19] Multimodal analgesia has been shown to provide effective pain relief following TKA and promotes recovery with improved clinical outcomes and better patient satisfaction.^[19]

Wylde *et al.*^[20], in their review of chronic pain after TKA, have reported an incidence of persistent pain following TKA of 16% to 33%. Our results are at the lower end of this range.

Pinto *et al.* found that 39 out of 44 (88.6%) patients included in their study reported pain 4 - 6 months after TKA^[21], which is a considerably higher incidence compared to our findings. Singh *et al.*, when comparing studies from 1987 to 1994 with more recent studies, have observed that outcomes of PPSP after TKA have shown improvement over time and the prevalence of PPSP has been decreasing over the past years.^[22] However, it is difficult to compare results with other studies because duration and method of follow-up assessment varies across studies. Since our results are from a single tertiary care center, they cannot be generalized for the incidence of PPSP following TKA in our patient population.

APS had assessed and managed the postoperative pain of 12 of the 13 patients who reported pain at three months. All of these patients had been satisfied with their postoperative pain management at the time of discharge. It has been seen that lack of knowledge about pain management among healthcare workers, infrequent pain assessments and inadequate treatment of pain are barriers

to patient satisfaction with pain management.^[23] These deficiencies can be overcome by a well-functioning APS, leading to better satisfaction levels as evidenced in our study, although many of our patients who claimed satisfaction were found to have pain three months after the surgery. Equal number of these patients had received intravenous opioids or epidural local anaesthetic infusion for postoperative pain management, displaying absence of influence of pain management modality on PPSP at three months in our study. However, it has been reported that perioperative epidural analgesia reduces the risk of persistent postsurgical pain.^[24]

CONCLUSION

Although PPSP is a documented negative consequence of TKA, its incidence in LMICs is unknown. Postoperative pain after TKA might be managed with a modest dose of opioids followed by NSADIS by the third postoperative day if the same analgesic regimen were used.

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