

# Effects of Spinal Anesthesia on Pain after Lower-Limb Amputation.

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## ABSTRACT

**Background:** Role of spinal anaesthesia in lower limb amputation is not studied much. This study evaluated the effect of spinal on pain after lower limb amputation. **Methods:** Fourteen patients who were evaluated for one week after their lower-limb amputation were evaluated. Patients received spinal anaesthesia for their amputation. Standardized questions were used to assess phantom limb pain preoperatively and postoperatively. Pain intensity was assessed on a verbal ratingscale of 0 to 10. After the interview, each patient's medical history and anaesthetic record were assessed. **Results:** Post-operatively, the patients had significantly lower pain when compared pre-operatively. 78.6% patients had phantom limb pain post-operatively. **Conclusion:** Patients who receivedspinal anaesthesia for amputation recalled less pain in the first weekafter their amputation.

**Keywords:** Amputation, pain, phantom limb pain, Spinal Anesthesia.

## INTRODUCTION

After lower-limb amputation, many patients continue to have sensation in the limb. These sensations range from slight tingling to sharp, aching, or throbbing pain. Because limb pain is often distressing and adversely affects patients after amputation,<sup>[1]</sup> treatment to prevent or reduce it is needed.

Phantom limb pain might be influenced by pre-amputation pain. Jensen et al,<sup>[2]</sup> and Nikolajsen et al,<sup>[3]</sup> reported that phantom limb pain is more frequent in patients with pre-amputation pain. Katz and Melzack suggested that many patients had phantom limb pain that resembled their pre-amputation pain in quality and location.<sup>[4]</sup>

We assessed patients after their lower-limb amputation to determine spinal anesthesia had any effect on their subsequent stump and phantom limb sensations.

## MATERIALS AND METHODS

The study subjects were the patients undergoing lower-limb amputation. Inclusion criteria included lowerlimb amputation within the past 12 months, and minimum age of 18 years.

Patients were asked to for average pain intensity that they felt before amputation and in the week after

amputation. They were also asked if they had any stump pain, phantom sensation, or phantom limb pain in the week preceding the interview. In all cases, perceived pain was rated on a verbal rating scale ranging from 1 to 10 (0 = no pain; 10 = worst pain imaginable). Stump pain was defined as a painful sensation or feeling from the stump or the remaining part of the leg but not from the removed part of the leg. Phantom sensation was defined as a nonpainful sensation or feeling from the removed part of the leg. Phantom limb pain was defined as a painful sensation or feeling from the removed part of the leg.

Data were presented and frequency, percentages, mean, and/or standard deviation.

## RESULTS

**Table 1: General characteristics**

Sex	Frequency	Percentage
Male	10	71
Female	4	29
Co-morbidities		
Diabetes	1	7
Hypertension	2	14
Cause of amputation		
Trauma	14	100
Use of opioids before amputation	4	29

**Table 2: Comparison of pain before and after amputation**

	Pain	P value
Before amputation	5.8±3.1	0.028
After amputation	3.4±2.3	

Fourteen patients were included in the study. Mean age of the patients was 54.12±13.15 years. Seventy-

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one percent patients were males. One patient had diabetes, and 2 patients had hypertension. Nine patients had below knee and 5 patients had above knee amputation. Trauma was the only reason for amputation in these patients. Twenty-nine percent patients were taking opioids before amputation.

In this study, pain was significantly lower following amputation ( $P=0.028$ ) [Table 2]. In the first week, the patients experiencing phantom pain was 78.6% ( $n=11$ ).

## DISCUSSION

In this study, although mean pain with spinal analgesia following amputation decreased; a majority of the patients experienced phantom pain. Bach et al,<sup>[5]</sup> provided lumbar epidural block with bupivacaine and morphine for 72 hours preoperatively to 11 patients. Fourteen control subjects received other analgesics without local anaesthetic before amputation. All patients received epidural or spinal analgesia for their amputation. At 6 months after amputation, the patients who received epidural analgesia before surgery had a significantly lower incidence of phantom limb pain. At 7 days and one year after amputation, the rates of phantom limb pain were not significantly different. The effect of spinal anaesthesia on pain after amputation had not been examined previously. Katz and Melzack suggested that spinal anaesthesia might reduce pain memories of the amputated limb.<sup>[4]</sup> We observed only a short-term beneficial effect of spinal anaesthesia on pain after amputation.

## CONCLUSION

In conclusion, we found that patients who received spinal anaesthesia for amputation recalled less pain in the first week after their amputation. Although, number of patients with phantom limb pain was higher.

### Author's contribution-

All authors contributed significantly to the conception, design, acquisition of data, data interpretation, and critical review of the article and final approval of the published version.

### Consent and approval -

Written informed consent was obtained from patients and approval from Institution taken. A copy is available for review by the Editor –in- chief of Journal.

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