



EFFECTIVENESS OF CRYOTHERAPY ON POSTOPERATIVE PAIN AMONG PATIENTS UNDERGONE ORTHOPAEDIC SURGERY FOR LOWER EXTREMITIES

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ABSTRACT

Background: Post operative pain undoubtedly, has a negative impact on the patient's psyche; causing discomfort and prohibiting early mobilization. Administration of oral opioids and non steroid anti inflammatory drugs are combined with sufficient relief of pain in the immediate postoperative period. [1] However, they aren't site specific and can be burdened by side effects, such as respiratory depression, nausea or acute gastric lesions. Alternative therapy can be used to minimize the use of these drugs. [2]. Cryotherapy is a well tolerated therapy for the reduction of pain and is also called as cold applications. Cryotherapy is a simple and inexpensive therapy which has been accepted for decades as an effective therapy for pain management[3]. **Objectives:** The study focused on assessment of postoperative pain among patients undergone orthopaedic surgery for lower extremities, evaluation of the effectiveness of cryotherapy on postoperative pain among patients undergone orthopaedic surgery for lower extremities. **Materials and methods:** Quantitative approach was used for the study. Study design selected was true experimental design. Simple random sampling technique was employed to select 35 patients in control and 35 patients in experimental group in Govt. Medical College Hospital, Kottayam. The technique of data collection used was self reporting. During the data collection period cryotherapy was given to the patients in experimental group, the ice packs covered with gauze bandage were applied over the dressing present on the surgical site. It was applied for 20 minutes every 2nd hourly for first 24 hours and every 4th hourly for the next 24 hours. Post test evaluation was done after 24 and 48 hours. **Results:** The study proved that cryotherapy was effective in reducing postoperative pain among patients undergone orthopaedic surgery for lower extremities. **Conclusion:** Based on the findings of the study it can be concluded that there is evident reduction in postoperative pain among patients undergone orthopaedic surgery for lower extremities as a result of cryotherapy.

KEYWORDS :

INTRODUCTION

Pain is an unpleasant sensory and emotional experience. Pain can affect the physiological, emotional, affective and psychological dimensions of an individual, hence it is termed as a complex multi dimensional experience. Pain is personal, subjective in experience with no objective measurements. Suffering is a frequent consequence of pain and comfort may not be possible in the presence of pain. Helplessness and suffering are experienced when individuals have insufficient resources. [4]

Postoperative pain is one of the most common therapeutic problems in hospital surgical wards. Strategies aimed at reducing postoperative pain increase patients comfort and can shorten hospital stay. Pain is not an unavoidable consequence of surgery. In majority of patients, postoperative pain is preventable with adequate analgesics and by the appropriate use of newer techniques. [5]

Cooling has an analgesic effect by slowing the nerve conduction velocity and relieves muscle spasm. It might also operate by affecting the nerve endings directly and by increasing the pain threshold. The vascular disturbances caused by original injury impose further trauma on tissue by reducing the availability of oxygen and nutrients. By lowering the metabolic need of tissue, cooling counteracts this effect and therefore reduces the occurrence of secondary hypoxic injury. Cooling is commonly used in soft tissue injury in combination with rest, compression and elevation to minimize inflammation. Its anti inflammatory action might be due to reduction of secondary hypoxic injury. [6]

MATERIALS AND METHODS

Quantitative approach was used for the study. Study design selected was true experimental design. A total of 70 samples were selected by simple random sampling technique. Lottery method was used for selecting 35 patients in the control and 35 patients in the experimental group. The technique of data collection used was self reporting. The following tools were used to collect the data on the present study.

Tool 1 : Socio personal and clinical data sheet.

Tool 2: Numeric rating scale for pain

Duration of the study was six weeks. The intervention given was cryotherapy. The ice packs were applied over the dressing present on the surgical site. In this study the cryotherapy was administered to the experimental group only and control group received routine care. The cryotherapy was applied every 2 hourly for the first 24 hours and every 4 hourly for the next 24 hours. First and second post test was conducted by using numerical pain scale at 24 and 48 hours of surgery for both experimental and control group.

RESULTS

A socio personal and clinical data sheet was prepared to collect information on different aspects. A few of the findings include the following. Among the study participants, 51.4% of patients in control group and 51.4% patients in experimental group belonged to the age group of 46-60 years. Majority of patients in control (57.1%) and experimental group (71.4%) were males. Regarding the dietary pattern, majority of patients (94.3% in control and 94.3% in experimental group) were non vegetarian. Majority of patients in the control (51.4) and experimental (51.4%) group were admitted due to fall. Among the study participants, 71.4% of patients in control and 80% patients in experimental group had no surgical implants. Majority of the patients in the control (62.9%) and experimental group (54.2%) undergone surgery more than one week after injury. Regarding the blood sugar level most of the patients in the control (60%) and experimental (51.4%) group had normal random blood sugar level.

Postoperative pain among patients undergone orthopaedic surgery for lower extremities

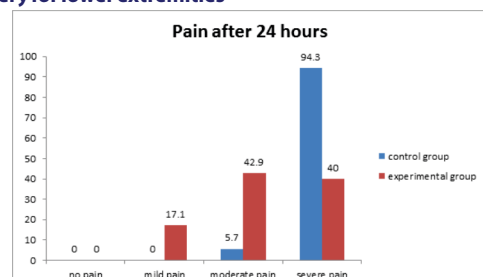


Figure 1: Postoperative pain among patients undergone orthopaedic surgery for lower extremities after 24 hours, n=70

In the control group about 94.3% patients had severe pain and 5.7% patients had moderate pain whereas in experimental group about 40% patients had severe pain, 42.9% patients had moderate pain and 17.1% patients had mild pain.

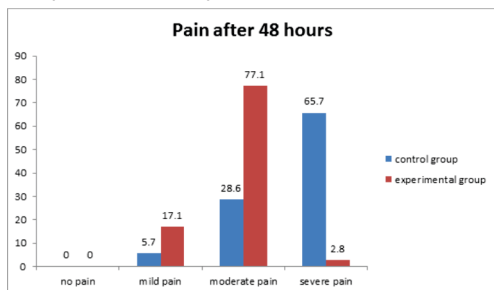


Figure 2: Postoperative pain among patients undergone orthopaedic surgery for lower extremities after 48 hours, n=70

In the control group about 65.7% patients had severe pain, 28.6% patients had moderate pain and 5.7% patients had mild pain whereas in experimental group about 5.7% patients had severe pain, 77.1% patients had moderate pain and 17.1% patients had mild pain.

**Table 1
Mean, standard deviation and t value of postoperative pain among patients undergone orthopaedic surgery for lower extremities after 24 and 48 hours of surgery**

(n=70)

Group	Pain		t
	Mean	SD	
After 24 hours			6.56 **
Control group	8.49	0.74	
Experimental group	7.17	0.92	
After 48 hours			8.92 **
Control group	7.26	0.82	
Experimental group	5.60	0.74	

**Significant at 0.01 level

The study findings concluded that cryotherapy was effective in reducing postoperative pain (p < 0.01) among patients undergone orthopaedic surgery for lower extremities.

DISCUSSION

The present study was conducted to evaluate the effectiveness of cryotherapy on postoperative pain among patients undergone orthopaedic surgery for lower extremities. The investigator provided cryotherapy to the experimental group only and control group received routine care. The cryotherapy was applied directly over the wound dressing present on the surgical site for 20 minutes. It was applied every 2 hourly for the first 24 hours and every 4 hourly for the next 24 hours. First and second post test was conducted by using numerical pain scale at 24 hours and 48 hours of surgery for both experimental and control group. The data were analyzed using descriptive and inferential statistics.

The results showed that cryotherapy had a statistically significant influence in reducing postoperative pain (0.01) among patients undergone orthopaedic surgery for lower extremities. The findings of the study was congruent with another study which reported that pain score of the experimental group decreased after cryotherapy, representing a significant decrease (p= 0.005). [7] The findings of the study was also congruent with another study which showed that there was significant lower amount of narcotic consumption (509 mg morphine equivalents) in the treatment group compared with the control group (680 mg morphine equivalents) up to two weeks after surgery.[8]

CONCLUSION

Based on the findings of the study the following conclusions were drawn. Postoperative pain was a major issue among patients undergone orthopaedic surgery for lower extremities. Cryotherapy is an effective therapy to reduce postoperative pain among patients undergone orthopaedic surgery for lower extremities.

The consequence of poor pain control will affect the patient's activities of daily living and qualities of life. In consideration of the problems, a study about the effectiveness of cryotherapy for patients after orthopaedic surgery in reducing pain was proposed. The pain and rehabilitation is in directed relationship: the poorer the pain control, the lower the motivation for rehabilitation. Thus, the patients' activities of daily living and quality of life will be affected. As discussed, cryotherapy is safe and will positively promote ROM of patient. And it is an economic and effective practice when compared with administering analgesics alone. This suggests that cryotherapy is one of the most feasible interventions performed by nurses in reducing postoperative pain for patients after orthopaedic surgery. The evidence based practice would guide to the highest quality of care. Therefore, the study of the effectiveness of cryotherapy should be developed to improve practice for the patients' best interests.

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