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Original Research Paper

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COMPARATIVE STUDY OF PAIN RELIEF BETWEEN USING TRACTION AND PILLOW SUPPORT IN PROXIMAL FEMUR FRACTURES

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ABSTRACT

INTRODUCTION: There is always confusion regarding preoperative stabilization modality for proximal femur fractures to achieve pain relief.

Objectives: The aim of this study was to study the effects of skeletal traction and pillow support on pain in patients with proximal femur fractures. Patients and Methods: A total of 50 patients contributed in this randomized clinical trial. Patients were randomly allotted into two equal groups: the skeletal traction and pillow support groups. The severity of pain was recorded at admission and 30 minutes, 24, 48 hours after traction/pillow support application using Visual Analogue Scale (VAS).

Results: The severity of pain was significantly decreased in skeletal traction group and pillow support group only at the end of the first day after traction application. The number of pain complaints which needs analgesics was the same between the two groups.

Conclusions: even though skeletal traction and pillow support had no effect on analgesic consumption, both have significantly decreased the pain at the end of the first day.

The application of skeletal traction and pillow support both are recommended in patients with proximal femur fractures.

KEYWORDS : proximal femur Fractures; skeletal Traction; Pain; pillow support; Analgesics

INTRODUCTION:

As the high velocity trauma are in increasing trend, the incidence of proximal femur fractures are in the rise among young individuals. Also due to the long life expectancy the incidence of proximal femur fractures are on the rise in older individual mainly due to main bulk of individuals are suffering from osteoporosis (1, 2, 3). There is always time delay between injury and surgery due to the fact that associated co morbidities/ associated other system injuries and due to patient overload in developing countries during which we need to immobilise the fractured limb to achieve pain relief.

Proximal femur fractures are important orthopedic problems in the elderly, which causes high morbidity and mortality. The one-year mortality rate reported following this fracture ranges from 11% to 34% (4-6) and this rate increases with age(4,5,6). It is explained that after the age 50, the possibility of hip fracture doubles every ten years(9,10) .Moreover, several researches has been conducted in western countries have demonstrated that the incidence of proximal femur fractures fracture is on rise(10). The treatment costs of these fractures are estimated to be more on higher side which causes economic burden on the society. This trend in the prevalence of these fractures along with the increase in the average age of the society and life expectancy demonstrate that hip fractures is the challenges to the health systems, both currently and in the future, due to the fact that most of them are suffering from osteoporosis, which can assume economic, social, and mental burden on individuals and society(1). One of the first measures that have been taken in the health centers of the world as well as in India for the patients that suffer from hip fractures is employing skeletal traction and it is believed that good results such as pain relief can be achieved by this method. Proximal femur fractures are accompanied by severe excruciating pain and looking for methods to relieve pain in these patients prior to operation is highly desirable. This matter is especially important in young patients because despite hip fracture is very rare among the youth, as it results from traumas with very high velocity motor vehicle accidents, it is accompanied by severe pain(1,7). Applying skeletal traction through bone to stabilize the fracture also to attain pain relief is highly needed and followed method. Using pillow support to achieve pain relief and to stabilize the fracture in the waiting period for surgery is a very good cost effective alternative .Many studies had been conducted regarding the effectiveness of skeletal traction and skin traction(19,20). But there are very few studies showing the usefulness of pillow support for proximal femur fractures in practice.

OBJECTIVE:

In this we are going to elaborate about the effectiveness of skeletal traction and pillow support in proximal femur fractures by measuring the pain relief (visual analog scale) and amount of analgesic used through a prospective study.

MATERIALS AND METHODS:

Totally 50 patients with proximal femur fractures were chosen for this study after getting appropriate consent and they were randomly allocated into two groups equally 1) Pillow support (25 members) 2)Skeletal traction (25 members) of 35-85 years age group. The patients were assured that in case of severe pain all possible measures would be taken to control pain in due course of stay in hospital. The patients who are smokers/addicted to analgesics (opioids) and patients suffering from multiple co morbid disorders were excluded from the study. Patient's data collected in the form of age, sex, mechanism of injury, and type of fracture were recorded. Visual Analogue Scale (VAS) was used to measure pain, which is a measurement scale consisting of a 10-cm line in which zero indicates no pain at all and ten indicates the worst pain imaginable for that patient. The severity of pain in patients was recorded at the time of admission and 30 minutes after skeletal traction/pillow support applied, twelve, and twenty four hours by VAS. And, during this period of stay in the hospital prior to the operation, the numbers of requests for analgesics/episodes of pain complaints were recorded. If the patient asked for analgesics, 100 mg diclofenac given to the patient and it was recorded to the case sheet.

RESULTS:

Table 1: Patient data

Patient data	Skeletal traction(25 patients)	Pillow support(25 patients)
Male	21	17
Female	4	8
Mechanism of injury		

Accidental fall	12	14
Road traffic accident	13	11

In the above table primary data of the participants are presented .From that we can analyze and come to know that there is no identifiable difference in sex, mechanism of injury etc.

Table 2: VAS scores of the patients before and after application of skeletal traction/pillow support

Patient data	Skeletal traction(25 patients)	Pillow support(25 patients)
At the time of admission	8.2	8.0
30 minutes later traction/pillow support applied	6.9	6.3
24 hours	3.8	3.5
48 hours	2.5	2.7

The above table shows that pain was very high at the time of admission and it was comparatively reduced after application of stabilization in the form of skeletal traction and pillow support and after 48 hours the pain was near completely reduced. And from the data shown above we can interpret that both skeletal traction and pillow support are equally effective in reducing pain in proximal femur fractures as a form of stabilization.

DISCUSSION:

Any fracture in the lower limb is an emergency where appropriate facilities for surgery are available. Likewise proximal femur fractures in young patients needs emergency surgical intervention.(1,2,5) However, complex co morbid conditions related to high-energy trauma in most of these subjects causes time delay to appropriate intervention. So, we need pain control which is of critical importance in preoperative patients before surgical intervention. Skeletal traction is one of the best treatment enterprises, which are applied to the patients with proximal femur fractures in numerous hospitals. And pillow support is the another best alternative which is also cost effective Despite the frequent usage of these methods and different studies regarding the effect of skeletal traction on the pain of these patients, there is still disagreement with these methods(18,19). In addition, there has been no proper evidence for its effectiveness or ineffectiveness. So, we decided to investigate indirectly (by the means of both groups having the same characteristics the effect of skeletal traction/pillow support on the pain of the patients with proximal femur fracture. In 1946, H.Burges et al. investigated the effect of skeletal traction on patients with proximal femur fracture in an indirect and predictive study. They concluded that skeletal traction decreased pain, but the needs of analgesic in both groups (without equal traction) were similar. They concluded that there is less evidence to suggest that skeletal traction is effective than external fixation. So, it is wise to opt for external fixation as a temporary measure. Moreover, Strange-Vognsen et al. in 1991 concluded that the pain of the patients with neck of femur fracture and the pressure tamponade causing osteonecrosis of the femur is comparatively reduced in patients stabilized with skeletal traction than control group. In 2016 Kazemian et al came to a decision that external fixation is far more superior in stabilizing than skeletal traction in patients with intertrochanteric fractures in case of pain control and fracture reduction.

Above mentioned two studies indicated that the traction (skeletal) before the surgery has minimal or no effect on reducing the pain of patients with hip fracture. Not only had these researchers noted that the existing evidence are not sufficient to reject the application of traction, but also they support more accurate study in this case.

Baransel Saygi et al studied the effect of pain relief in intertrochanteric fractures using skin traction, pillow support. And concluded that both procedures are equally effective as a temporary measure. Skin traction kit without weight was applied as a placebo group in addition to traction and pillow support. And they indicated that Better pain control was achieved in the placebo group than in the traction and pillow support groups.(17)

From the above studies it was clear that both skeletal traction and pillow support both are better in term of stabilization for proximal femur fractures but the amount of analgesic use had not been minimized.

In our study we could find that initially after the application of skeletal traction the pain was high, when compared to the pillow support group. It could be attributed to the pin site pain due to recent application. But at the end of 48 hours of observation both groups yielded the more or less same outcome.

CONCLUSION:

In our study we conclude that both skeletal traction and pillow support are good temporary methods to stabilize proximal femur fractures in preoperative period and both these methods can be recommended to other new patients in preoperative period who are all waiting for surgery.

LIMITATIONS:

Large volume of patients has to be studied to ascertain the superiority of one method over the other.

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