ORIGINAL ARTICLE

The Role of Early Mobilization in the Prevention of Post Operative Wound Infection after Lower Extremity Orthopedic Surgeries

Syed Shakil-ur-Rehman, Sohail Iqbal Sheikh, Khalid Farooq Danish

ABSTRACT

Objective: To determine effects of early mobilization in reducing post operative wound infection after lower extremity orthopedic surgeries.

Study Design: Quasi Experimental Study.

Place and Duration of Study: This study was carried out at department of orthopedics Pakistan Railway General Hospital Rawalpindi, from August 2010 to July 2012.

Materials & Methods: Eighty nine patients who had undergone lower extremity surgery were conveniently placed into early mobilization group A and delayed mobilization group B. All the patients mobilized within first week after surgery were included in group A, and those mobilized after one week of surgery were included in group B. Patients' wound infection was defined as local redness, pain, and pus discharge within three weeks after surgery. Results were analyzed using Chi-square test with SPSS-16.0.

Results: Minimum age of patients in this study was 10 and maximum 90 years with a mean of 45 in group A and 44 in group B. The total number of the cases of wound infections was 6 (6.74%); 2 (4.4%) in the early mobilized group and 4(9%) in the delayed mobilized group. Statistical analysis showed significant difference in the number of wound infections in both groups and the result for group A was statistically more significant (p value=0.03) as compared to result) for group B (p value =0.06)

Conclusions: We conclude that after lower extremity orthopedic surgeries, early mobilization is needed, as it significantly reduces the postoperative wound infection rates, and early mobility is achieved.

Key words: *Lower extremity orthopedic surgeries, Early mobilization, Post wound Infection*

Introduction

The risk of postoperative complications is associated with every orthopedic surgery. The wound infection is one of the major complications that could occur after any orthopedic surgery and always threats the patient's prognosis by delaying recovery and increasing hospital stay.[1] It has been estimated that each patient with a surgical site infection will require an additional 6.5 days in hospital, which results in the doubling of hospital costs associated with that patient.[2]

The complex of many factor are responsible for the development of the wound infection after orthopedic surgery.[3] The contributing factors for the development of postoperative wound infection after orthopedic surgery include: the state of hydration, nutrition and existing medical conditions as well as extrinsic factors, the pre-, intra-, and post-operative care.[4]

It is always the top priority of each orthopedic surgeon to mobilize the patient as soon as possible after every lower extremity orthopedic surgery. Sometimes it is very difficult to mobilize the patient due to factors like patient's age, loss of joint integrity, general body weakness, and some comorbid psychiatric or neurological conditions.

The type of mobilization depends upon the surgical procedure, patient's age, bone density and patient's mental health. The types of mobilization are full, partial and non weight bearing. Some equipments, assistive devices, and walking aids are also commonly used like tilting table, immobilizers and crutches, walkers and canes. The patient's mobility is always the responsibility of the physical therapist with

Correspondence:
Syed Shakil- ur- Rehman
Department of Physiotherapy
Riphah International University
Rawalpindi

the consent of orthopedic surgeon.

Material and Methods

This was a quasi experimental study done in the department of orthopedics IIMCT Pak. Railway General Hospital Rawalpindi. Duration of the study was one year, from august 2010 to July 2012. 89 Patients were included in the study and divided in two groups (45 in group A and 44 in group B).convenient technique was applied. All patients of lower extremity surgeries above the age of 10 years, admitted and operated in the orthopedic unit were included in the surgery.

All patients with closed reduction procedures, arthroscopically assisted surgeries and with any surgical procedure done in the upper extremity were excluded from the study. The patients mobilized within one week after surgery were placed in the group A, the early mobilized group and all the patients mobilized after the one week of surgery were placed in group B , the delayed mobilized group.

The patients' data was analyzed by the statistical software SPSS version 16. Number of patients having postoperative wound infection was recorded in both groups. Percentages were calculated and compared using Chi-square test. P value < 0.05 was considered significant.

Results

Out of a total 89 patients, 55 were males and 34 were females. Minimum age of patients in this study was 10 and maximum 90 years with a mean of 44 in group A and 49 in group B. The total number of wound infections was 6 (6.74%); 2 (4.4%) in the early mobilized group and 4 (5.6%) in the delayed mobilized group, as shown in Table: I. The statistical analysis shows significant difference in number of infection in both groups and the statistical results for group A was (p value=0.03) statistically significant as compared to result (p value=0.06) for group B, which is statistically not significant. (Table I)

Table I: Frequency of postoperative wound infection after lower extremity orthopedic sugery(n= 89)

Patient groups	Total patients	Infected	Non infected
A	45	2(4.4%)	43 (95.5%)
B	44	4(9%)	40 (91%)

Discussion

These results are supported by many international studies. Stockton KA and Mengersen KA conducted a clinical trial on 57 patients who had undergone total hip replacement. They concluded that the patients, who received physical therapy treatment twice a day, achieved the functional milestones earlier as compared to the other group, who received physical therapy treatment once a day. The result of this study shows that early mobilization and physical therapy treatment can achieve early mobility and decreases the hospital stay.[5]

Study done by Brasher PA et al added that early mobility can decrease post operative complications after cardiac surgery. This clinical trial was conducted on two hundred and thirty patients and this study supports our results that early mobility can decrease postoperative infection.[6]

Another clinical trial conducted by Cinar N et al department of physical medicine and rehabilitation, Ankara Numune Training and Research Hospital, Ankara, Turkey on fifty seven patients with modified radical mastectomy. They concluded that early

onset rehabilitation program after modified radical mastectomy provides improvement in shoulder mobility and functional capacity without causing adverse effect in postoperative period.[7]

A randomized controlled trial done by Bendz I, Fagevik Olsen, and M Title on Two hundred and thirty women who had undergone surgery for breast cancer were randomized to a prospective study. At the end of this study they concluded that mobility of the shoulder girdle is restored in the immediate exercise group as compared to the delayed exercise group.[8] Stovall M et al conducted a randomized controlled trail on 199 patients. They compared the improved performance in activities of daily living with mobility after a multidisciplinary postoperative rehabilitation in older people with femoral neck fracture: a randomized controlled trial with 1-year follow-up. The intervention consisted of staff education, individualized care planning and rehabilitation, active prevention, detection and treatment of postoperative complications. They concluded that a multidisciplinary postoperative intervention programme enhances activities of daily living performance and mobility after hip fracture, from both a short-term and long-term perspective. This study supports the key role of a physical therapist and rehabilitation after lower extremity orthopedic surgeries.[9]

Budny PG, Lavelle J, Regan PJ, and Roberts AH conducted a randomized clinical trial on sixty one patients with Pretibial injuries. In group A they traditionally advised bed rest to 40 patients and in group B they early mobilized the 21 patients. Comparison of the outcome suggested that the hospital stay in group A was 12 days and group B only 2 days. They concluded that early mobility can decrease the hospital stay and post injury complications.[10]

In a contemporary study, Khan MS et al. showed 5.76% infection rate in their patients who had undergone orthopedic surgical procedures, supports our results. However they did not relate it to post operative immobilization time or early mobilization time.[11]

Conclusion

We conclude that after lower extremity orthopedic surgeries, early mobilization is needed, as it significantly reduces the postoperative wound infection rates, and early mobility is achieved.

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