

EFFECTIVENESS OF FRAGILITY FRACTURE INTEGRATED REHABILITATION MANAGEMENT FOR IMPROVING QUALITY OF LIFE OF HIP FRACTURE GERIATRIC PATIENTS

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ABSTRACT:

Objective: To determine the effects of Fragility Fracture Integrated Rehabilitation Management approach in fractures of hip in elders

Study Design: Pre, Post control study design

Place and Duration: Seoul National University, Bundang Hospital Korea

Methodology: Total 20 patients were conveniently sampled and enrolled in group of patients having treatment protocol of FIRM for hip fractures. Patients with diagnosed femoral neck fractures, intertrochanteric and subtrochanteric fractures, bipolar hemi-arthroplasty, total hip replacement, reduction and internal fixation with age above 55 were included. Data was collected through the following questionnaires Functional ambulatory scale (FAC), Quality of life QOL, EQ-50 and Modified barthal index.

Results: Table 1.1 shows that before treatment 2 (10%) patients were having total dependence, 8 (40%) severe, 9 (45%) moderate, 1 (5%) in slight dependence. After FIRM protocol no patient was totally dependent, 4 (20%) lies in severe, 14 (70%) in moderate and 2 (10%) in slight independence. Graph 1.2 shows that before treatment mean value of EQ-50 was 0.33 (level III- ambulatory dependent was physical assistance level -1) and after treatment mean was 0.61 (ambulatory independent). Graph 1.3 shows that before enrolling in FIRM group, patients were at level 1 (nonfunctional ambulatory), 6 were in level II and III (Ambulator – dependent for physical assistance), 5 were in level 4 (Ambulator – dependent for supervision) and no patient was independent. After treatment 1 was in level 1, 4 in level II, 13 in III and 2 were in level IV.

Conclusion: Patients of hip fractures have improved in terms of mobility barthal index, Quality of life (EQ-5D) and Functional ambulatory category (FAC) after taking fragility fracture integrated rehab management (FIRM).

Keywords: Fragility Fracture Integrated Rehabilitation Management, Hip fractures, Elders

INTRODUCTION:

Falls constitute 2/3rd of death cases in older adults. Among all clinical problems, falls and balance issues are mostly faced by elders. Both of above conditions substantially raises elder morbidity and mortality rate. About 40% of older adults fell down once yearly and 1 in 40 needs hospitalization. In U.S elders with age range > 65 years, about 3/4th die due to fall. Hip fractures are most common consequence of fall. Common causes of fall are lessen mineralization, slow reflexes, age related physiological changes and high velocity injuries. ⁽¹⁾From 1990 to 2010, life expectancy increased by 75.1% in population having age above 60. According to WHO report elder population over age 60 will reach to 11% by 2025 as compared to 5.6% in 1998. Over two decades population of India has also increased by 73.2%, in Srilanka 74% and 79.5% in Bangladesh. ⁽²⁾ Incidence rate of hip fracture in Caucasian population is higher than others like South America and Africa with most common cause of osteoporosis. Rate of hip fractures rise from 1990 (1.66m) to 2050 (6.26m) yearly. ⁽³⁾ Comprehensive treatment of hip fractures surely will reduce length of hospitalization but due to lack of facilities like less human resources. Such protocols are not available in community based hospitals but in tertiary care setups. For such purpose multidisciplinary hip fracture care program comprising of orthopedic doctors, physiotherapists, occupational therapists, nurses geriatricians was designed as Korean fragility fracture rehab study group known as Fragility Fracture Integrated Rehab Management (FIRM). FIRM main goal is to increase level of independence including detailed discharge planning. It consist of 10 days PT and 4 days OT sessions increasing gradually depending on patients functional level. ⁽⁴⁾

This study is going to introduce a new rehabilitation method i.e, FIRM (Fragility Fracture Integrated Rehabilitation Management). If research hypothesis is proved this is going to be a big step in better rehabilitation of cases with Fragility fractures, which are on the rise due to advancing age, osteoporosis and other causes. This system will be contribute public health by increasing quality of life in elderly patients with fragility fracture and preventing second

fracture. The objective of study is to determine the effects of Fragility Fracture Integrated Rehabilitation Management approach for prevention of re-fractures of hip in elders

MATERIALS AND METHODS:

Total 20 patients were conveniently sampled and enrolled in group of patients having treatment protocol of FIRM for hip fractures. Data was collected from Seoul National University, Bundang Hospital Korea. Patients with diagnosed femoral neck fractures, intertrochanteric and sub-trochanteric fractures, bipolar hemi-arthroplasty, total hip replacement, reduction and internal fixation with age above 55 were included. Patients who had multiple fractures, revised hip surgeries, isolated greater and lesser tuberosity fractures, fractures due to infection and malignancy were excluded. Data was collected through the following questionnaires Functional ambulatory scale (FAC), Quality of life QOL, EQ-50 and Modified barthal index.

RESULTS:

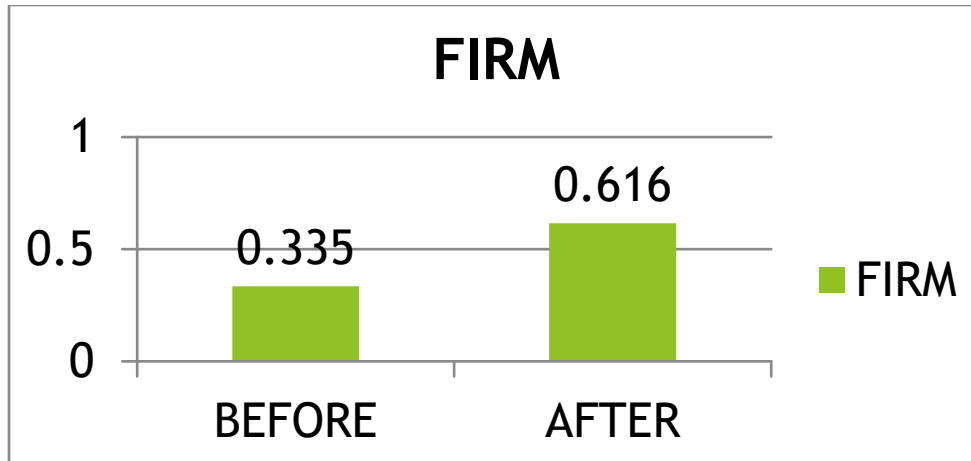
Mean age, height and weight of sample size was 83.2 ± 5.3 , 54.4 ± 9.9 and 155.0 ± 8.4 respectively.

Table 1.1: Pre and post mobility barthal index scores for Firm fracture integrated rehab management.

	0-20 Total dependence	21-60 Severe dependence	61-90 Moderatedependence	91-99 Slight dependence	100 Independent
BEFORE	2 (10%)	8 (40%)	9 (45%)	1 (5%)	0
AFTER	0	4 (20%)	14 (70%)	2 (10%)	0

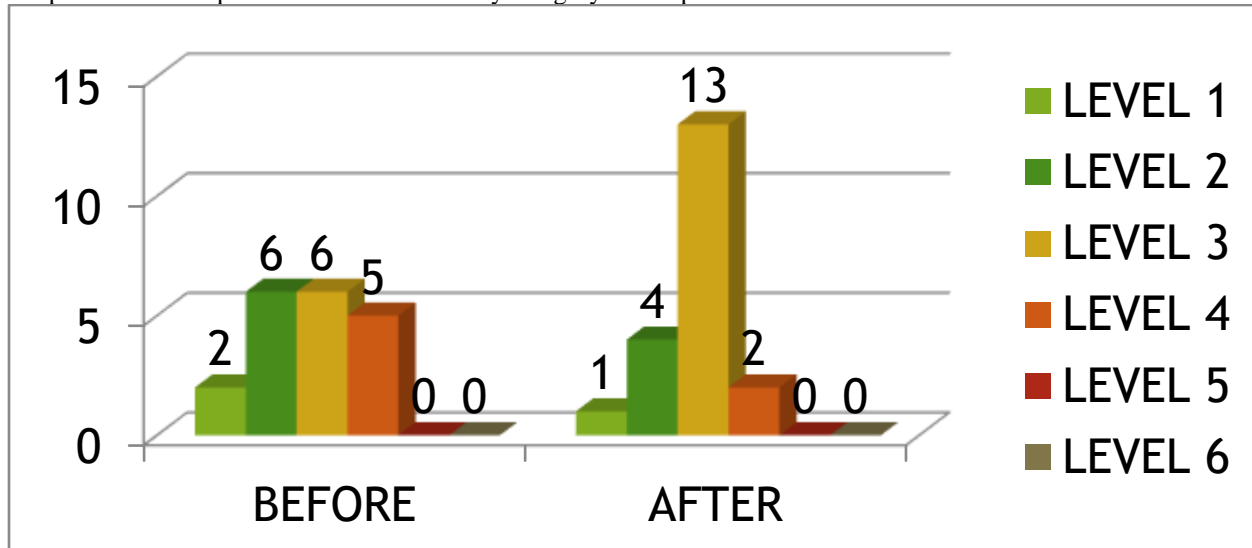
Table 1.1 shows that before treatment 2 (10%) patients were having total dependence, 8 (40%) severe, 9 (45%) moderate, 1 (5%) in slight dependence. After FFIRM protocol no patient was totally dependent, 4 (20%) lies in severe, 14 (70%) in moderate and 2 (10%) in slight independence.

Graph 1.2: Pre and post EQ-5D scoring for sample size



Graph 1.2 shows that before treatment mean value of EQ-50 was 0.33 (level III- ambulatory dependent was physical assistance level -1) and after treatment mean was 0.61 (ambulatory independent)

Graph 1.3: Pre and post functional ambulatory category of sample size



Graph 1.3 shows that before enrolling in FFIRM group, patients were at level 1 (non functional ambulatory), 6 were in level II and III (Ambulator – dependent for physical assistance), 5 were in level 4 (Ambulator – dependent for supervision) and no patient was independent. After treatment 1 was in level 1, 4 in level II, 13 in III and 2 were in level IV.

DISCUSSION:

Hips fractures are major fractures and nearly always require hospitalization. It is fatal in 20% of cases and permanently disables 50% of those affected, only 30% of patients fully recover. ⁽⁵⁾ Due to the ageing process of industrialized country population and the population growth of developing countries, the incidence of these fractures can become epidemic in next 50 years. ⁽⁶⁾Chan and co-workers conducted a study on cemented hemi-arthroplasties for elderly patients with inter-trochanteric fractures on 54 elder patients. Mean age was 84.2. After loss to follow up, out of total 40 patients, 19 were in same mobility category as before, 8 patients were not moved to dependency level even on walking aids but 6 patients were non independent due to balance issues. Surgical complications were also considered in the study. ⁽⁷⁾ Comparative study between home and institutional rehabilitation of hip fracture patients was done by Rajja in Queen Elizabeth Hospital on 81 patients. Mean age of participants was 75 years. He found out that both groups improved ambulation but none of them reached pre-ambulatory category. ⁽⁸⁾ Current study found out that after FFIRM protocol patient have improved in level of functional mobility but no one was completely independent. Folbert and colleagues conducted a study to find out the associated risk factors for elder hip fracture patients. Result showed that male gender (O.R = 1.68), increasing age (O.R = 1.06), malnutrition (O.R = 2.01), physical limitations in

daily living (O.R = 2.35) and decreasing barthal index (O.R = 0.96) were risk factors for one year mortality. ⁽⁹⁾ Kammerlander did a study on 80 years old hip fracture patients for long term functional outcomes. Barthal index was used for assessment which was 49.6. One fourth of participants were bed ridden, 45% were not able to walk outside, and unaided walk by 8% and 88% were bound to one floor type. ⁽¹⁰⁾ Current study found out that after FIRM protocol no patient was bed ridden, 20% were in severe dependence, 70% in moderate and 2% in slight dependence. Current study showed that mean quality of life EQ-5D was increased from 0.3 (before adopting FFIRM protocol) to 0.6 (after taking FFIRM sessions) Tidermark and friends find out the functional outcomes and quality of life in elder patients with femoral neck fractures treated with internal fixation. Follow up was of 17 months. Mean score of EQ-5D was decreased from 0.78 (before fracture) to 0.59 (4 months) to 0.51 (17 months). Good correlation was seen between EQ-5D and outcomes of pain, mobility, independence in ADL and independent living status. ⁽¹¹⁾

CONCLUSION:

Patients of hip fractures have improved in terms of mobility barthal index, Quality of life (EQ-5D) and Functional ambulatory category (FAC) after taking fragility fracture integrated rehab management (FIRM).

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Conception and Design: Anam Aftab, Shaista Habibullah, Naveed Babur, Jae Young Lim

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Conflict of Interest: None

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