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Effect of Intensive Rehabilitation Protocol on Patients' Ambulation and Daily Living Activities Post Hip Fracture

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Abstract

A hip fracture is a serious injury, with complications that can be life-threatening. **The study aimed** to evaluate the effect of intensive rehabilitation protocol on patients' ambulation and daily living activity post hip fracture. **Patients and Method:** This study was carried out in the orthopedics surgery department and its outpatient clinics at Assiut university hospital. A purposive sample of 60 patients was divided into two groups (study group and control group) 30 patients for each group. The following tools were utilized for data collection**: First tool:** Self – administered questionnaire, **Second tool:** Ambulation Score**, Third tool:** Lawton – Brody Instrumental activities of daily living scale**. Results:** two-thirds of the studied patients in both groups were in the age group 56 ≥ 65 years old with a mean age of 56.93± 10.97 years, most of the participating patients in study and control groups have femoral neck fracture (80 & 83.3%) and had previous complain of osteoporosis (53.4 & 60 %) respectively. There was a significant difference between the study and control group regarding mean ambulation and muscular control after the application of intensive rehabilitation protocol with (5.4 ± 2.22 and 3.23 ± 2.17) for ambulation score and (7.2 ± 1.90 and 5.36 ± 2.15) for muscular control with p.value (0.0001* & 0.001*) respectively, but, there was no statistically significant difference between the study and control groups regarding activities of daily living scale except their responsibility for their medications. **Conclusion:** intensive rehabilitation can improve the ambulation and muscular control post femoral fracture arthroplasty but was not enough for improving the patient's activity of daily living. **Recommendations:** Establishing an effective rehabilitation protocol for post-hip fracture patients and providing a written rehabilitation instructions booklet.

Keywords: Activity of Daily Living, hip fracture & Intensive rehabilitation protocol

Introduction

The hip joint is situated between the acetabulum and the proximal femur. Femoral neck, intertrochanteric, and subtrochanteric fractures are the three types of proximal femur fractures that make up hip fractures **(Sarvi, 2018).** Depending on how closely the fracture site is linked to the capsule of the hip joint, hip fractures can either be intracapsular or extracapsular. Because the joint capsule starts at the femoral neck and links to the pelvis, femoral neck fractures are intracapsular whereas intertrochanteric or subtrochanteric fractures are extracapsular **(Emmerson et al., 2022).**

Younger individuals frequently get hip fractures as a result of high-energy trauma. These patients should be evaluated and treated in accordance with local trauma standards since they are suspected to have had numerous injuries **(Sreekanta et al., 2019).** Nowadays, 6% of men and 18% of women worldwide suffer from hip fractures. Hip fractures are common and constitute 20% of orthopedic traumatology's surgical burden. More specifically, almost 50% of all hip fractures are femoral neck fractures. Worldwide, people are living longer, thus it stands to reason that there will be more hip fractures. According to estimates, there would be 4.5 million hip fractures worldwide by 2050, up from 1.26 million in 1990 **(Dyer et al., 2017).**

Pre-existing comorbidities deteriorate and new problems are likely to develop as the time of immobility following surgery lengthens. As a result, early rehabilitation is crucial for encouraging postoperative early ambulation **(Kenyon-Smith et al., 2019).** Starting a rehabilitation program as soon as feasible will help to prevent functional decline and problems. Rehabilitation following surgery is as crucial as the initial procedure. To help the patient regain their former level of mobility, rigorous physical treatment is needed regularly. Optimizing medical care is also necessary to lower the likelihood of related problems **(Emmerson et al, 2022)**

For patients with hip fractures to receive the best postoperative care, early mobility is crucial. Early mobility includes activities including getting in and

out of bed, sit-to-stand, sitting in an armchair, and walking with a walker. Several instructions highly advise adopting this first tactic. Early aided ambulation (begun within 48 hours after surgery) expedites functional early ambulation and is linked to a higher percentage of direct discharges to the patient's home and a lower percentage of discharges to high-level care. **(Lee et al., 2020)**

Significance of the study

Hip fractures are devastating wounds that can impair a patient's quality of life, and cause impairment, reliance, immobility, and fatality. The incidence of morbidity and mortality is rising nowadays, and the fatality rate is over 30%. This is due to an increase in the frequency of automobile accidents. Many studies have demonstrated that effective recovery following hip fracture surgery can reduce hospital stays, enhance physical function, and aid patients in maintaining their independence in everyday life **(Dyer et al., 2017).** The number of patients admitted with hip fracture, was 150 **according to Assiut University Hospital Record, 2021** Therefore, this study is considered to help patients improve early ambulation and activity of daily living.

Aim of the study

Evaluate the effect of intensive rehabilitation protocol on patients' ambulation and daily living activity post hip fracture

Research Hyposeses:

- The mean ambulation scores of the study group patients after the application of intensive rehabilitation protocol will be more than those of the control group.
- Activity daily living of the study group patients after the application of intensive rehabilitation protocol will be improved than those of the control group.

Materials & Method

Study design: A quasi-experimental (control and study) research design was used to achieve the study's aim.

Setting: The study was conducted at the orthopedics surgery department and its outpatient clinics at Assiut university hospital.

Sample size:

A purposive sample of 60 patients was divided into two groups (study group and control group) 30 patients for each group, who volunteered to participate in the study regardless of gender, education level, or location.

G power analysis to estimate the sample size was performed based on the result of the previous study. Assuming power of 0.80%, type I error of 0.05%, and type II error of 0.20 with a Confidence interval (CI) of 95%. A total sample size of 56 participants is required. The eligible patients were invited to participate after the assessment of whether they met all of the inclusion criteria n =60.

Inclusion criteria: of the participants were adult males and females aged 18 to 60 years old with recent femoral neck fractures and Intertrochanteric hip fracture (arthroplasty) and willing to engage in the study.

Exclusion criteria: neglected femoral neck fracture, pathological fracture, severe multiple traumata or sever comorbidity, skeletal abnormalities or osteoarthritis, diabetes mellitus, immobility before surgery (bedridden patients, severe neurological disorders), dementia, delirium, language barrier, and polytrauma and/or external fixation.

Tools of the study:

Two tools were used to achieve the aim of the study.

Tool I: - Self – administered questionnaire.

This tool used to assess hip fracture patients developed by the researchers based on recent national and international literature, and included 2 parts as follows:-

Part 1: Demographic characteristics, such as age, gender, residence, educational level, and occupation.

Part 2: Medical assessment: which included type of fracture and risk factors for hip fracture?

Tool II: Ambulation Score:

The ambulation score was created as a modification of the Cumulated Ambulation Score (CAS), which was created by **(Kristensen et al., 2009).** The test was created to evaluate immediate post-total hip arthroplasty ambulation, although it may be used on patients who have undergone any sort of significant lower limb surgery. The test consists of 4 activities:

• Ambulation to a sitting position in bed
• Ambulation to a standing position from the bed
• Walking with a high walker on wheels
• Walking with elbow crutches for each activity

Both the degree of muscle control with the operated limb and the patient's ability to complete the activity (if necessary with personal physical support) are evaluated. If a patient is unable to complete an activity, the test is over and no more efforts to complete the other tasks are made.

Ambulation score: The patient's capacity to walk is evaluated for each completed activity in accordance with the following criteria: If the task is completed independently, a score of 2 was given. Without any type of human physical assistance, the patient must carry out the task. Both assistive technology and verbal help are accepted. If the task is carried out with personal assistance from a person, a score of 1 is given. Assistive devices are allowed. If the task cannot be completed despite significant assistance

from one or more people and assistive equipment, a score of 0 is given.

Muscular control score: The patient's capacity to control the operated limb is evaluated in accordance with the following criteria for each completed activity: If the operated leg has strong control, a score of 3 is given. Good control indicates that the patient may effectively ambulate on the operated limb. Compared to the un operated leg, muscular control is just marginally compromised. If control with the operated leg is fair, a score of 2 is given. Fair control refers to the patient being able to utilize the operated limb somewhat when walking but having much less muscle control than the unoperated leg. If control of the operated leg is insufficient, a score of 1 is given. Poor control indicates that the patient finds it difficult to ambulate on the operated limb and that the patient's muscle control is practically insufficient. If the patient is unable to complete the first task, a score of 0 is assigned.

Termination of test: If the test is stopped (for instance, if the patient cannot walk without using elbow crutches), the reason(s) is/are mentioned as follows: Pain, Nausea or vomiting, Dizziness or indisposition, Insufficient motor control to ambulate safely, Drainage from the surgical wound that preclude further ambulation or other reasons (reasons noted)

Scoring system:

The test produces two scores:

- The total of the ambulation scores from the activities done is the ambulation score (0–8).
- The median of the muscle control scores from the performed activities is a muscular control score (0–3).
- The score is zero if the initial activity (moving from standing to sitting) cannot be completed. On a numeric pain rating scale, where 0 represents no pain and 10 represents the most excruciating pain imaginable, the patient is also assessing the severity of the greatest hip-related pain experienced when walking on the operated side.

Tool III: Lawton – Brody Instrumental activities of daily living scale:

The Lawton IADL is a simple-to-use assessment tool that collects self-reported data on the functional skills required for community living. It was developed by **(Lawton & Brody, 1969).** It takes 10 to 15 minutes to administer. An excellent tool for evaluating independence in daily life is the Lawton Instrumental Activities of Daily Life Scale (IADL). The measure is particularly helpful for determining a person's current functioning and tracking improvement or declines over time.

Scoring system:

The Lawton IADL scale measures eight different functional domains. Women are evaluated in all 8 functional areas; traditionally, males have not been evaluated in the areas of food preparation, housework, and laundry. According to their maximum degree of functioning in that category, clients are graded. A summary score for males is 0 through 5, while for women it runs from 0 (poor function, dependent) to 8 (great function, independent).

Intensive (6 weeks) Rehabilitation Protocol:

The researchers developed a specific rehabilitation protocol according to the recent national and international literature review and available resources; it consisted of illustrated exercises listed in simple steps to perform the exercise easily. It included specific exercises that should be performed in bed, sitting, and standing positions. Also, the rehabilitation protocol included instructions regarding the correct position during sleep, sitting position, How to walk with crutches, How to climb upstairs or downstairs with crutches, and finally, the correct position during driving a car.

Fieldwork description:

Validity and Reliability of the study tools:

Ambulation score reliability: test-retest showed stability between time 1 and time 3, with Pearson's correlation coefficient given as $r = 0.90$

Lawton – Brody Instrumental activities of daily living scale internal consistency is excellent, with Cronbach's α test reported at 0. 85

A five-person expert panel examined the rehabilitation program for clarity, relevance, comprehensiveness, comprehension, and ease of implementation. Three professors in the field of orthopedics and two professors in the field of nursing served on the panel. Few modifications were needed, and the correction was made as necessary.

Ethical considerations*:*

According to the **World Medical Association's Declaration of Helsinki (1997)**, all research ethical guidelines shall be followed. Ethical permission from the nursing faculty at Assiut University's ethical committee was obtained with IRB no: 4530031 on March 8, 2023, before the conduct of the pilot trial and the real study. The study's participants are free to withdraw from it at any time and without giving a reason if they want to decline participation. All participant information will be treated with complete secrecy.

Pilot study:

Before data collection, every tool was examined for clarity, objectivity, relevance, practicality, and application using a pilot study of 6 patients (10%). This was essential for any queries that needed data

collection, and the adjustments that were required were carried out as a consequence. This pilot investigation indicates that the necessary adjustments were made. The research sample did not include any of the patients who were involved in the pilot study.

Procedure:

The study proceeded using the following phases:

Preparatory phase:

- The study was authorized by the director of the orthopedic surgery department and the outpatient clinics at Assiut University Hospital.
- Patients who agreed to participate were asked for their oral consent after being informed that their information would be kept secret and only used for legitimate research.
- Arabic, colored booklet included intensive rehabilitation protocol was prepared and printed in hard copies to provide to patients.

Implementation phase:

- Data were gathered in the morning and afternoon shifts at the orthopedic surgery department and outpatient clinic at Assiut university hospital between the first of May 2022 and the end of December 2022.
- The researchers conducted individual interviews with every patient. Depending on the patient's responsiveness and participation, the baseline data collection took an average of 20 to 30 minutes.
- Before beginning data collection, the patients were informed of the study's purpose. Patients are also informed of the plans for their care.
- During this phase, participants were randomly split into two equal groups (the study group and the control group). (30 patients for each group).
- Baseline data were collected by researchers as age, gender, residence, educational level, occupation will be obtained, as demographic information and a thorough medical history by using Tool I parts 1, and 2.
- Post-surgery, the control group of patients received routine medical and nursing care.
- 24 hours post-surgery, the study group of patients received routine medical and nursing care and was also educated by the researchers on the intensive rehabilitation protocol by explanation, demonstration, and re-demonstrations of the exercise.
- Patients in the study group were allowed to practice the exercises they had learned with the researcher's supervision to make sure they understood exactly how to do the exercise correctly.
- The researchers provided the study group of patients with the rehabilitation protocol by dividing the program into two sessions:
- **The first session; this** session included patients teaching about bed exercises, sitting exercises, standing exercises, correct position during sleep, and correct position during sitting. The time needed for the first session was 20 – 30 minutes.
- **The second** session included teaching the patients a specific exercise for how to walk with crutches, how to climb upstairs with crutches, how to down stairs with crutches, and correct position during driving a car. The time needed for the second session was 20 – 30 minutes.
- A colorful educational booklet in understandable Arabic was supplied to the patients being researched. To aid in their retention of the rehabilitation program, the researcher employed illustrations, diagrams, and role-playing.
- Patients were monitored weekly for six weeks at outpatient clinics to ensure that patients were compliant with performing the rehabilitation protocol at their homes.

Follow-up phase:

A scheduled follow-up meeting was arranged by the researchers for both the study and control group to assess ambulation score and activities of daily living by using Tools II, and III once after six weeks.

Statistical design:

Statistic evaluation Using SPSS, all of the analyses were carried out using (IBM version 22.0). Researchers employed component ratios and descriptive statistics to examine the subjects' overall data. To analyze the study's findings, the researchers used the Pearson chi-square and paired t-tests. Every p-value was two-tailed, and a significance threshold of 0.05 was used.

Results:

Table (1): Distribution of the demographic characteristics of the study and control groups of patients (n=60):

Items	Group		P value
	Study (30) N (%)	Control (30) N (%)	
Age:			
18 > 35	4(13.3)	2(6.7)	0.981ns
35> 55	3 (10)	8(26.6)	
55≥ 65	23 (76.7)	20(66.7)	
Mean±SD	56.93 ± 10.97		
Gender:			
Male	12 (40)	10(33.3)	0.789ns
Female	18 (60)	20(66.7)	
Marital status:			
Single	1(3.3)	1(3.3)	0.553ns
Married	26(86.7)	23(76.7)	
Widow	3(10)	6(20)	
Education:			
Illiterate	15(50)	16(53.4)	0.337ns
primary certificate	5(16.7)	9(30)	
secondary certificate	6(20)	4(13.3)	
Have a university degree	4(13.3)	1(3.3)	
Occupation:			
Employee	1(3.3)	0	0.518ns
Student	0	1(3.3)	
Literal	7(23.4)	4(13.3)	
Housewife	18(60)	19(63.4)	
Retired	4(13.3)	6(20)	
Residence:			
Rural	20(66.7)	24 (80)	0.382ns
Urban	10 (33.3)	6 (20)	

Not significant = ≥ 0.05 *significant ≤ 0.05* *high significant P value <0.001*

Table (2): Distribution of clinical data among study and control groups of patients (n=60)

Items	Group		P value
	Study (30) N (%)	Control (30) N (%)	
Hip fracture Type:			0.500ns
- Femoral neck fracture	24 (80)	25 (83.3)	
- Intertrochanteric hip fracture	6 (20)	5 (16.7)	
Risk Factors:			
- Osteoporosis	16(53.4)	18(60)	0.161ns
- Excessive alcohol and caffeine consumption	2(6.7)	0	
- Lack of physical activity	4(13.2)	6(20)	
- Vision problems	1(3.3)	0	
- Medications that cause bone loss	2(6.7)	6(20)	
- Cigarette smoking	1(3.3)	0	
- Institutional living, such as an assisted-care facility	2(6.7)	0	
- Increased risk for falls, related to weakness, disability, or unsteady gait	2(6.7)	0	

not significant = ≥ 0.05 *significant ≤ 0.05* *high significant P value <0.001*

Table (3): Distribution of Ambulation Score of the study and control groups of patients (n=60)

Items	Group		P value
	Study Mean ± SD	Control Mean ± SD	
Activity 1: Ambulation to sitting position in bed			
- Ambulation	1.26 ± 0.58	0.73 ± 0.44	0.0001*
- Muscular control	2.3 ±0.79.	1.46 ± 0.89	0.0001*
Activity 2: Ambulation to a standing position from the bed			
- Ambulation	1.2000±0.55086	0.8333±0.59209	0.016*
- Muscular control	2.3667±0.61495	1.8333±0.59209	0.001*
Activity 3: Walking with a high walker on wheels			
- Ambulation	1.4667±0.62881	0.8333±0.59209	0.0001*
Activity 4: Walking with elbow crutches			
- Ambulation	1.46±0.62	0.83±0.59	0.0001*
- Muscular control	2.53±0.62	2.0±0.78	0.014*
Total			
- -Ambulation	5.40±2.22	3.23±2.17	0.0001*
- -Muscular control	7.20±1.90	5.36±2.15	0.001*
Reason for termination:			
- Pain	18	3	0.0001*
- Dizziness or indisposition	6	7	
- Insufficient muscular control	6	20	
Pain during ambulation			
- 4.00	12	0	0.0001*
- 5.00	8	4	
- 6.00	8	11	
- 7.00	0	7	
- 10.00	2	8	

Independent Samples Test *Chi-Square Tests Not significant = ≥ 0.05*
Significant ≤ 0.05 *high significant P value <0.001*

Table (4): Distribution of Lawton – Brody Instrumental activities of daily living scale of the study and control groups of patients (n=60).

Items	Group		P value
	Study Mean ± SD	Control Mean ± SD	
A. Ability to Use Telephone	**.6667± .47946**	**.5000± .50855**	0.197ns
B. Shopping	**.4000± .49827**	**.3333± .47946**	0.599ns
C. Food Preparation	**.2333± .43018**	**.3333± .47946**	0.399ns
D. Housekeeping	**.1333± .34575**	**.3333± .47946**	0.069ns
E. Laundry	**.1333± .34575**	**.3333± .47946**	0.069ns
F. Mode of Transportation	**.6000± .49827**	**.8667± .34575**	0.019ns
G. Responsibility for Own Medications	**.8000± .40684**	**1.0000±.00000**	0.009*
H. Ability to Handle Finances	**1.0000±.00000**	**1.0000±.00000**	Cannot be computed because the standard deviations of both groups are 0.

ANOVA testnot significant = ≥ 0.05
significant ≤ 0.05
high significant P value <0.001

Table (5): Relation between Socio-demographic data and Ambulation score of the study and control groups of patients (n=60):

Socio-demographic data	Ambulation score			
	Study		Control	
	Mean±SD	P value	Mean±SD	P value
Age	56.90±11.127	.744ns	56.9667±.11.0093	.212 ns
Gender	1.6000±.49827	.531 ns	1.6667± .47946	.851ns
Marital status	2.1667±.64772	.445 ns	2.3667± .85029	.326 ns
Education	1.9667±1.12903	.953 ns	1.6667±.84418	.300ns
Occupation	2.5667±.89763	.359 ns	2.5667±.85836	.249 ns
Residence	1.3333±.47946	.667 ns	1.2000±.40684	.738 ns

ANOVA test not significant = ≥ 0.05 significant ≤ 0.05 high significant P value <0.001

Table (6): Relation between Socio-demographic data and Activities of daily living of the study and control groups of patients (n=60).

Socio-demographic data	Activities of daily living			
	Study		Control	
	Mean±SD	P value	Mean±SD	P value
Age	56.90±11.127	.755ns	56.9667±.11.0093	.317 ns
Gender	1.6000±.49827	.654 ns	1.6667± .47946	.886ns
Marital status	2.1667±.64772	.719 ns	2.3667± .85029	.468 ns
Education	1.9667±1.12903	.784 ns	1.6667±.84418	.278ns
Occupation	2.5667±.89763	.736 ns	2.5667±.85836	.290 ns
Residence	1.3333±.47946	.040 ns	1.2000±.40684	.894 ns

ANOVAtestnot significant = ≥ 0.05 significant ≤ 0.05 high significant P value <0.001

Table (7): Relation between Lawton – Brody Instrumental activities of daily living scale and Ambulation score for study and control group of patients (n=60)

Item	Study			Control		
	Mean ± SD		P value	Mean ± SD		P value
	Ambulation	Muscular control		Ambulation	Muscular control	
Activities of daily living	5.4000±2.22215	7.2000±1.90100	0.0001*	3.2333±2.17641	5.3667±2.15732	0.029ns

ANOVA test not significant = ≥ 0.05 significant ≤ 0.05 high significant P value <0.001

Table (1): Revealed that around two-thirds of the studied patients in both groups in the age group 56 ≥ 65 with mean age 56.93 ± 10.97 years old, female and housewives, most of them were married, around half of them were illiterates, and the majority of them were living in rural areas.

Table (2): Shows that the majorities of the participating patients in both groups have femoral neck fractures (arthroplasty), and had previous complaints of osteoporosis.

Table (3): Revealed that there was a significant difference between the study and control groups regarding Ambulation Scores Post program implementation.

Table (4): Illustrated that there was no statistically significant difference between the study and control groups regarding activities of daily living scale except their responsibility for their medications.

Table (5): Revealed that there was no relation between socio-demographic data and ambulation score in both study and control groups of patients.

Table (6): Revealed that there was no relation between socio-demographic data and Activities of daily living in both study and control groups of patients.

Table (7): Showed that there was statistical significant relation between the activities of daily living scale and ambulation score for the study group of patients which means post program implementation activity of daily living was improves as the ambulation and muscle control score increased.

Discussion

Hip fracture (HF) continues to be a catastrophic event with a significant risk of mortality and disability despite advancements in surgery and care **(Cecchi et al., 2018).** This research aims to evaluate the effect of intensive rehabilitation protocol on patients' ambulation and daily living activity post hip fracture **.**The result of the present study revealed that two-thirds of the studied patients in both groups were between fifty-six and sixty-five years. From the researcher's point of view, hip fracture increase with age due to osteoporosis which leads to many fractures including hip fractures in older patients. These results were in accordance with the results by **(Wei et al., 2019)** who reported that Hip fracture risk rises one hundred to one thousand fold over sixty years of aging, Also this study finding agreed with (**Hökby et al., 2021)** who found that Most hip fractures occur in adults over the age of sixty. After age fifty, the frequency of hip fractures doubles every ten years.

Concerning gender, the current study showed that two-thirds of the studied patients were females and housewives and this agreed with the study which was conducted by **(Pekonen et al., 2021)** who mentioned that women are more prone to osteoporosis than men; therefore, hip fracture is more common among women. More than 1.5 million Americans have fractures each year because of osteoporosis. From the researcher's point of view, two-thirds of the studied patients were females. As we previously mentioned, the mean age of the studied groups was fifty-six, and this age especially for females. Also, this study agreed with (**Farouket al., 2017)** who mentioned that according to a prospective cross-sectional research of 275 patients with hip fractures who arrived at the trauma unit at Assiut University Hospitals, osteoporosis is common among those patients and has been associated to the female sex, aging, low BMI, and falls on the ground.

Regarding marital status, the current study found that most of the studied patients were married. This result was in disagreement with the finding of **(Hökby et al., 2021)** who reported that the proportion of hip fractures was higher among the unmarried than the married. From the researcher's point of view that hip fractures occurred among married patients due to house workload, especially for women, and the presence of osteoporosis.

The present study revealed that most of the participating patients in both groups had femoral neck fractures (arthroplasty). These findings were reinforced by the findings of **(Guay et al., 2018)** who found that a fracture of the femoral neck can occur 1 to 2 inches from the hip joint. Older persons frequently suffer from this kind of fracture, which is linked to osteoporosis.

Regarding ambulation score, there was a statistically significant difference between the study and the control group. In the researcher's opinion, Proper rehabilitation after surgery improves ambulation score due to strengthening the muscles through exercises. This study's results agreed with **(Wu et al., 2018)** who declared that home-based rehabilitation was found to significantly improve mobility, daily activity instrumental activity, and balance. this study is also supported by **(Ellen et al., 2019)** who stressed that physical therapy also had significantly greater improvements than the control condition in measures of muscle strength, walking speed, balance, and perceived health.

Concerning Lawton – Brody Instrumental activities of daily living scale between the study and control group, the current study illustrated that there was no statistically significant difference between the study and control groups regarding activities of daily living scale. This finding disagreed with **(Ropke et al., 2022)** who stated that motor and process skills showed a better increase in activity daily living motor ability measures.

The present study revealed that there was no significant difference between socio-demographic data and ambulation scores in both groups. This study's results disagreed with **(Pillai et al., 2020)** who stated that hip fractures are more common among females irrespective of age group. Older patients have higher mortality and a greater deterioration of walking ability after such injuries. From the researcher's point of view, the young group had improved ambulation scores more than the elderly and this opinion agreed with**(Mahmoud et al., 2020)** who mentioned that physical functioning for the young group had improved physical functioning more than the elderly group.

In this study, the result revealed that there was no significant difference between socio-demographic data and activities of daily living in both groups. These findings contradicted the findings of **(Ortiz-Alonso et al., 2012)** that showed that older age was strongly associated with poor early ambulation in all areas of function, except eating. Older age was strongly associated with poor early ambulation of activity and daily livings at all follow-up times. From the researcher's point of view, hip fractures have profound effects on ADL in both men and women, regardless of age and this agreed with **(Córcoles-Jiménez et al., 2021)** that found Hip fractures have profound effects on HRQoL and ADL in both men and women, regardless of age. This indicates the need for special follow-up care of elderly hip fracture patients in the immediate and late post-fracture periods.

The current study revealed that there was no significant difference between the activities of daily living scale and ambulation score for the control group, however, there was a statistically significant difference for the study group. This result was in agreement with the findings of **(Toyama et al., 2022)** who mentioned that The BMS and motor-FIM scores have a very close association, which shows that BMS is a good indication of changes in ADL. A Basic Movement Scale (BMS) was used to assess ambulatory function, and the motor subscale of the Functional Independence Measure was used to assess ADL (motor-FIM).From the researcher's point of view, six weeks were not sufficient enough for returning to perform activities of daily living.

Conclusion

Intensive rehabilitation can improve the ambulation and muscular control post femoral fracture arthroplasty but is not enough for improving the patient's activity daily living.

Recommendations

- Permanent attendance of a rehabilitator nurse in the orthopedic surgery department is of great importance to instruct and apply the rehabilitation of the patients.
- A regularly scheduled, ongoing program for patients in the orthopedic surgery department's outpatient clinic that includes education and rehabilitation.
- It is crucial to give patients written rehabilitation instructions in a booklet.
- Increase patients' awareness of the value of routine checkups to avoid developing complications that could influence their quality of life.
- Establishment of a hotline (phone and net) contact for urgent consultations.

References

- **Binkley JM, Stratford PW, Lott SA &Riddle DL. (1999):** The Lower Extremity Functional Scale (LEFS): scale development, measurement properties, and clinical application. North American Orthopedic Rehabilitation Research Network. Phys Ther**.** 79(4):371-83.
- **Cecchi, F., Pancani, S., Antonioli, D., Ávila, L., Barilli, M., Gambini, M., Pellegrini, L., Romano, E., Sarti, C., Zingoni, M., Gabrielli, M. G., Vannetti, F., Pasquini, G., & Macchi, C. (2018):** Predictors of recovering ambulation after hip fracture inpatient rehabilitation. BMC Geriatrics, 18(1). https://doi.org/10.1186/s12877-018-0884-2
- **Córcoles-Jiménez, M., Villada-Munera, A., Del Egido-Fernández, M., Candel-Parra, E., Moreno-Moreno, M., Del Carmen Jiménez-Sánchez, M., & Piña-Martínez, A. (2021):** Recovery of Activities of Daily Living Among Older People One Year After Hip Fracture. Clinical Nursing Research, 24(6), 604–623. https://doi.org/10.1177/1054773815573261
- **Dyer, S., Perracini, M., Smith, T., Fairhall, N., Cameron, I., Sherrington, C., & Crotty, M. (2017):** Rehabilitation Following Hip Fracture. Springer eBooks, 183–222. https://doi.org/10.1007/978-3-030-48126-1_12.
- **Ellen F. Binder, MD; Marybeth Brown, PT, PhD; David R. Sinacore, PT, (2019):** Effects of Extended Outpatient Rehabilitation After Hip FractureA Randomized Controlled Trial,292(7):837-846. doi:10.1001/jama.292.7.837.
- **Emmerson BR, Varacallo M, Inman D. (2022): Hip Fracture Overview.** Sep 4. In: Stat Pearls [Internet]. Treasure Island (FL): Stat Pearls Publishing; 2023 Jan–. PMID: 32491446.
- **Farouk O , Mahran DG , Said HG, Alaa M M, Eisa A , Imam H , & Said GZ (2017):** Osteoporosis among hospitalized patients with proximal femoral fractures in Assiut University Trauma Unit, Egypt , Dec;12(1):12. doi: 10.1007/s11657-017-0308-5. Epub 2017 Jan 24**.**
- **Guay J, Parker MJ, Griffiths R, & Kopp SL (2018):** "Peripheral Nerve Blocks for Hip Fractures: A Cochrane Review". Anesthesia and Analgesia. **126** (5): 16951704. doi:10.1213/ANE.0000000000002489. PMID 28991122. S2CID 37497179.
- **Hökbya A., Reimers A., & aLaflamme, L. (2021):** Hip fractures among older people: do marital status and type of residence matter? Public Health, Volume 117, Issue 3, May, Pages 196-201.
- **Kenyon-Smith, T., Nguyen, E., Oberai, T., & Jarsma, R. (2019):** Early Mobilization Post–Hip Fracture Surgery. Geriatric Orthopaedic Surgery & Rehabilitation, 10,215145931982643. https://doi.org/10.1177/2151459319826431.
- **Kristensen, M., Andersen, L., Bech-Jensen, R., Moos, M., Hovmand, B., Ekdahl, C., & Kehlet, H. (2009):** High intertester reliability of the Cumulated Ambulation Score for the evaluation of basic mobility in patients with hip fracture. Clinical Rehabilitation, 23(12), 1116–1123. https://doi.org/10.1177/0269215509342330
- **Lawton, M.P., & Brody, E.M. (1969):** Assessment of older people: Self-maintaining and instrumental activities of daily living**.** The Gerontologist**,** 9(3), 179-186.

- **Lee KJ, Um SH, & Kim YH. (2020):** Postoperative Rehabilitation after Hip Fracture: A Literature Review. Hip Pelvis. 2020 Sep;32(3):125-131. doi: 10.5371/hp.2020.32.3.125. PMID: 32953704; PMCID: PMC7476786.
- **Mahmoud W.M, Mekkawy M.M, Farouk O.A, & Desouky A.A ,(2020):**The Effect of Three Different Ages of Patients with Hip Fracture on their Quality of Life Comparative Study, Assiut Scientific Nursing Journal http://asnj.journals.ekb.eg http://www.arabimpactfactor.com Vol (8), Issue (20), Special No.(1) , pp (59- 67) 59.
- **Ortiz-Alonso, F., Vidán-Astiz, M., Alonso-Armesto, M., Toledano-Iglesias, M., Alvarez-Nebreda, L., Brañas-Baztan, F., & Serra-Rexach, J. (2018):** The Pattern of Recovery of Ambulation After Hip Fracture Differs With Age in Elderly Patients. The Journals of Gerontology, 67A(6), 690–697. https://doi.org/10.1093/gerona/glr231
- **Pekonen, S.-R. Kopra, J. Kröger, H. Rikkonen T., & Sund, R. (2021):** Regional and gender-specific analyses give new perspectives for secular trend in hip fracture incidence,Osteoporosis International volume 32, pages1725–1733.
- **Pillai, A., Eranki, V., Shenoy, R., & Hadidi, M. (2020):** Age Related Incidence and Early Outcomes of Hip Fractures: A Prospective Cohort Study of 1177 patients. Journal of Orthopaedic Surgery and Research, 6(1). https://doi.org/10.1186/1749-799x-6-5.
- **Ropke, A., Morville, A., Møller, T., Delkus, E., & Juhl, C. (2022):** HIP Fracture REhabilitation Program for older adults with hip fracture (HIP-REP) based on Activity of Daily Living: a feasibility study. BMC Geriatrics. https://doi.org/10.21203/rs.3.rs-829183/v1.
- **Sarvi, M. (2018):** Hip Fracture: Anatomy, Causes, and Consequences. InTech eBooks. https://doi.org/10.5772/intechopen.75946.
- **Sreekanta, A., Parker, M., Wood, H., Glanville, J., Cook, J., & Griffin, X. (2019):** Arthroplasties for hip fracture in adults. The Cochrane Database of Systematic Reviews. Retrieved January 21, 2023, from https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6710857/.
- **Toyama S, Sawada K, Ueshima K, Mikami Y, Mori I, Takamuku K, Takahashi T, & Kubo T, (2018):** Changes in Basic Movement Ability and Activities of Daily Living After Hip Fractures: Correlation Between Basic Movement Scale and Motor-Functional Independence Measure Scores, American Journal of Physical Medicine & Rehabilitation, 0197(5):316-322, DOI: 10.1097/phm.0000000000000829 PMID: 28930758.
- **Wei, J., Zeng, L., Li, S., Luo, F., Xiang, Z., & Ding, Q. (2019):** Relationship between comorbidities and treatment decision-making in elderly hip fracture patients. Aging Clinical and Experimental Research, 31(12), 1735–1741. https://doi.org/10.1007/s40520-019-01134-5
- **Wu, D., Zhu, X., & Zhang, S. (2018):** Effect of home-based rehabilitation for hip fracture: A meta-analysis of randomized controlled trials. Journal of Rehabilitation Medicine, 50(6), 481–486. https://doi.org/10.2340/16501977-2328.