

ORIGINAL

Effect of an Intervention Program on Activities of Daily Living Post Intertrochanteric Fracture Surgery

Efecto de un programa de intervención sobre las actividades de la vida diaria después de la cirugía de fractura intertrocantérea

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ABSTRACT

Introduction: a fracture is a type of musculoskeletal injuries that impairs the capacity to engage in daily activities, Intertrochanteric fractures are prevalent extracapsular fractures of the proximal femur occurring at the junction of the greater and lesser trochanters.

Objective: this study aims to evaluate the effect of an intervention program on the activity of daily living for patients with intertrochanteric fracture, to investigate the correlation among demographic characteristics (age, gender, level of education, marital status, occupation, residence, body mass index) and activities of daily living.

Method: a quantitative approach using the a-pre-experimental study design was used for one group that applied the program by carry out of a pre and post-test approach for study sample at Mosul teaching hospital between 3rd of April 2024 until 16th of November 2024. Self-administered questionnaires are utilized to evaluated the objectives of the study. 30 patients were non-probability (purposive) sample exposure to intervention program. (SPSS) version 26, descriptive statistical are (frequency, percentages, mean of score) and inferential statistical (Wilcoxon Signed Rank Test) were applied to the data analysis.

Results: a substantial improvement in patient information was observed among sample of the study members, with a highly statistically significant result ($P < 0,001$), at post-test compared to pre-test.

Conclusions: the study concludes that the intervention program significantly improved patients' information in the study sample at the post-test following the program.

Keywords: Intervention Program; Intertrochanteric Fracture; ADLs (Activities of Daily Living).

RESUMEN

Introducción: una fractura es un tipo de lesión musculoesquelética que afecta la capacidad para realizar las actividades diarias, las fracturas intertrocantéreas son fracturas extracapsulares prevalentes del fémur proximal que ocurren en la unión de los trocánteres mayor y menor.

Objetivo: este estudio tiene como objetivo evaluar el efecto de un programa de intervención sobre la actividad de la vida diaria de pacientes con fractura intertrocantérea, para investigar la correlación entre las características demográficas (edad, sexo, nivel de educación, estado civil, ocupación, residencia, índice de masa corporal) y las actividades de la vida diaria.

Método: se utilizó un enfoque cuantitativo que utiliza un diseño de estudio preexperimental para un grupo que aplicó el programa mediante la realización de un enfoque de prueba previa y posterior para la muestra del estudio en el hospital universitario de Mosul entre el 3 de abril de 2024 y el 16 de noviembre de 2024.

Se utilizan cuestionarios autoadministrados para evaluar los objetivos del estudio. 30 pacientes fueron una muestra no probabilística (intencional) de exposición al programa de intervención. (SPSS) versión 26, al análisis de los datos se les aplicó estadística descriptiva (frecuencia, porcentajes, media de puntuación) y estadística inferencial (Wilcoxon Signed Rank Test).

Resultados: se observó una mejora sustancial en la información del paciente entre la muestra de los miembros del estudio, con un resultado estadísticamente altamente significativo ($P < 0,001$), en la prueba posterior en comparación con la prueba previa.

Conclusiones: el estudio concluye que el programa de intervención mejoró significativamente la información de los pacientes en la muestra de estudio en el post-test posterior al programa.

Palabras clave: Programa de Intervención; Fractura Intertrocantérea; AVD (Actividades de la Vida Diaria).

INTRODUCTION

Hip fractures significantly impair mobility and shorten life expectancy, and they are very prevalent in elderly persons, almost all cases require surgery.⁽¹⁾ An intertrochanteric femur fracture is an extracapsular fracture along the line between the greater and lesser trochanters.⁽²⁾ Osteoporosis is the most common bone disease in the human and characterized by low bone mass.⁽³⁾ accidental falls, car crashes, and trauma from sports are common causes of fractures.⁽⁴⁾ causes damage to the soft tissue and skin around the fracture, allowing germs to enter.⁽⁵⁾ The consequences of such an infection could alter the patient's life.⁽⁶⁾ It is typical for daily life activities and independence to deteriorate after fracture, surgery and rehabilitation team are to get a patient back to their prior level of functioning.⁽⁷⁾ and In the first year following a fracture, death rates can reach 20 %.^(8,9) By 2050, the aging population is predicted to cause the yearly number of patients with proximal femur fractures to reach 6,3 million, with a rising incidence of trochanteric fractures.⁽¹⁰⁾ There are two types of internal fixation options: plating and intramedullary fixation. A load-bearing device with rotational stability is the proximal femoral nail, or PFN.⁽¹¹⁾ Proximal femoral nailing results in fewer complications, such as compartment syndrome, compared to other immobilization devices like casts.⁽¹²⁾ Immediate full weight-bearing following proximal femur fracture surgery is the ultimate goal for older patients, as individuals treated with weight-bearing restrictions showed a markedly higher mortality rate.⁽¹³⁾ Performance and reliance in activities of daily living are increasingly prevalent among the elderly. Nevertheless, strength training has demonstrated the capacity to augment body mass index and enhance physical performance.⁽¹⁴⁾

METHOD

Study design: the current study employs a quantitative approach with a per-experimental design by administering a pre-test and post-test to the study sample. Data is collected twice: once to establish baseline data and again following the implementation of the intervention program.

Sample and Sampling: the study was conducted between April 3, 2024, and November 16, 2024. In addition, the researcher created and produced instrument tools for the intervention program design. A non-probability (purposive) sample of (30) patients was chosen at random from teaching hospitals in Mosul that are immediately exposed to an intervention program in order to fill in the gaps in patient information that are based on a review of the scientific literature and earlier research.

Inclusion Criteria: patients who consented and were willing to be included in the study population, those with intertrochanteric fractures, and those who underwent proximal femoral nailing.

Exclusion Criteria: patients with different types of fractures, who are under the age of 18 years, patients with external fixations and bone plates, as well as those who missed a portion of the study

Study instruments and data collection: the questionnaire which is related to the assessment data of patients undergoing proximal femoral nailing for intertrochanteric fractures, specifically regarding activities of daily living. Under the researcher's supervision, all patients are interviewed, with each patient taking between (20-30) minutes to respond. The questionnaire comprises two portions. The demographic data is included in the first section, and the second half relates to patient's information that contain of a (50) items (I know, I do not know), categorized into four primary axis. The first axis addresses patient information concerning proximal femoral nailing, consisting of (10) items. The second axis pertains to activities of daily life following surgery PFN, comprising (30) items include (getting in and out of bed, toileting, showering, dressing, Get in and out of car, House activity). third axis- which represents patients' information about preventing falls consists of (5) items. Furth axis which provides patients with information regarding incorrect positions that should be avoided in order to prevent complications following PFN surgery consists of (5) items. The Likers' scale is used to score these items: I know (1); I do not know (0).

Statistical Analysis: the data from this inquiry were analyzed using two statistical approaches. Frequency, percentage, Arithmetic Mean (\bar{x}) are all used in descriptive statistics, and Wilcoxon Signed Rank Test are used

in inferential statistics to comparisons between related samples. The findings were classified as non-significant at $P>0,05$, significant at $P<0,05$, and high significant at $P<0,01$.

Ethical consideration: the participants had the freedom to decline participation at any moment, and the study's nature was harmless. Make sure that all records and patients' data are kept private and confidential and are only utilized for research.

RESULTS

Table 1. Distribution of sociodemographic variables for the study sample (n = 30)

Variable	Items	F	%
Gender	Male	14	47
	Female	16	53
Age	20-29	3	10
	30-39	4	13
	40-49	9	30
	50-59	10	33
	≥60	4	13
Marital status	Married	25	83
	Single	1	3
	Widow	4	13
Level of education	Reads and writes	2	7
	Primary Graduate	8	27
	Intermediate graduate	7	23
	High school graduate	5	17
Residency	Urban	22	73
	Countryside	8	27
Occupation	government employee	10	33
	freelance	11	37
	Retired	1	3
	Housewife	8	27
BMI	less than 18	3	10
	18-24,9	11	37
	25-29,9	13	43
	30-34,9	3	10
Total		30	100

Note: F=Frequency, %=Percentage

The analysis indicated that over half, specifically 53 %, of the patients were female. 33 % of the patients were between the ages of 50 and 59, and. eighty-three percent of participants are married, and 27 % possess a primary graduate. The study found that 73 % of the study group participants reside in urban areas. With regard to occupation, the majority of the study participants were self-employed, at a rate of 37 %. here, we discuss the body mass index of the patients. Our study revealed that a significant proportion fell within the range of 25 to 29,9, at a percent of 43 %.

Table 2. Significant Differences in Patients' Information about Proximal Femoral Nailing for Intertrochanteric Fracture regarding Pre-test and Post-test among Study Sample

Activity of daily living	Pre-Post Test	Wilcoxon Signed Rank Test			
		Mean rank	Z	P-value	Sig.
In and out of bed	Pre	0,00	4,683	0,000	H.S
	Post	14,50			
Toilet using	Pre	3,50	4,404	0,000	H.S
	Post	14,84			
Showering	Pre	3,50	4,493	0,000	H.S

Dressing	Post	14,40	4,185	0,000	H.S
	Pre	5,50			
Get in and out of car	Post	15,06	4,639	0,000	H.S
	Pre	4,50			
House activity	Post	15,38	3,621	0,000	H.S
	Pre	8,75			
Over all	Post	14,36	4,788	0,000	H.S
	Pre	0,00			
	Post	15,50			

Note: Z= Wilcoxon Signed Rank Test; Sig= significant; H.S= highly significant

Table 2 shows that there is a highly significant difference related to posttest for study sample in overall domains and subdomain when analyzed by Wilcoxon Signed Rank Test.

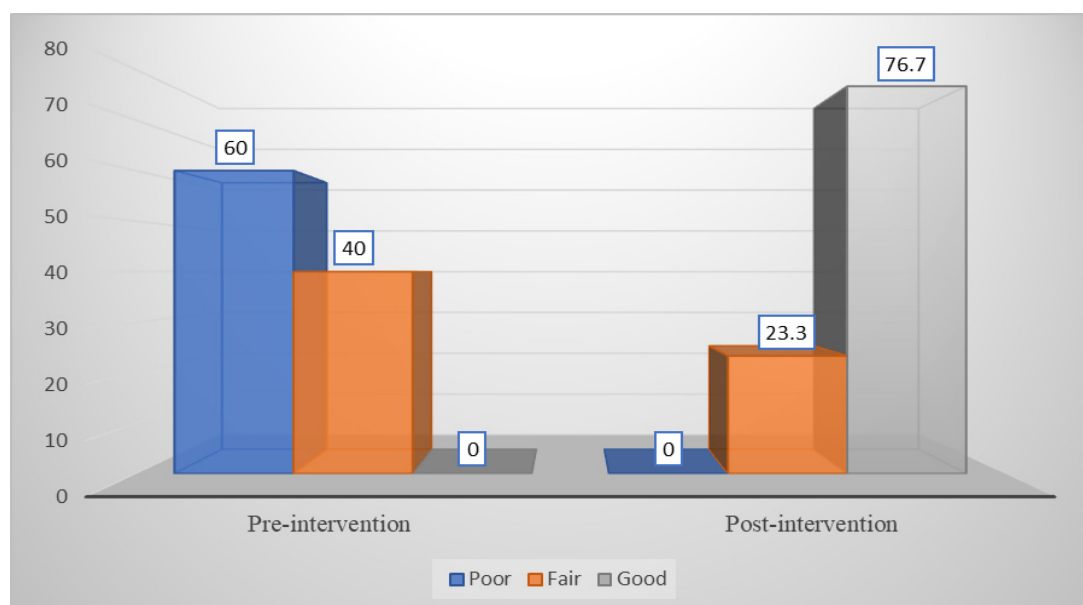


Figure 1. Level of patient's information ADLs for intertrochanteric fracture

Figure 1 shows that patients in the study sample show poor to fair level on information during pretest (60 %, 40 % and zero related to good) There is a dramatic improvement at post-test after intervention, with 76,7 % of respondents now rating the situation as good, the poor ratings have completely diminished, with Fair ratings dropping to 23,3 %.

Table 3. Relationships among Patients' information and their Sociodemographic Variables in the Study Sample

Variable	Class	Spearman's rho correlation					
		r ^s	pre		r ^s	Post	
			P -value	Sig.		P -value	Sig.
Gender	Male	0,472	0,008	H.S	0,434	0,016	S
	Female						
Age	20-29	0,053	0,779	N.S	-0,208	0,270	N.S
	30-39						
	40-49						
	50-59						
	≥60						
Marital Status	Married	0,151	0,425	N.S	-0,206	0,274	N.S
	Single						
	Divorced						

Level of Education	Widow						
	Reads and writes	0,352	0,056	N.S	0,317	0,087	N.S
	Primary Graduate						
	Intermediate graduate						
	High school graduate						
	Graduate college or institute						
Residency	Post graduate						
	Urban	0,066	0,731	N.S	-0,092	0,629	N.S
Occupation	Countryside						
	government employee	-0,382	0,037	N.S	0,061	0,749	N.S
	freelance						
	Retired						
BMI	Housewife						
	less than 18	-0,442	0,015	S	0,202	0,283	N.S
	18-24,9						
	25-29,9						
	30-34,9						
	over than 35						
Note: rs= Spearman's rho correlation							

Table 3 indicates that there is no significant relationship has reported among patients' overall information scores in the study sample and sociodemographic variables; age, Marital status, level of education, residency, and occupation. Accept Gender it was high significant at pretest and significant at posttest. Associated with BMI it was significant at pretest and non-significant at posttest.

DISCUSSION

In this study, we described the effect of an intervention program on activities of daily living following proximal femoral nailing fixation. Table 1 the results of the current investigation's data analysis show that female make 53 % of study sample include, this finding agrees with the finding of study done by ⁽¹⁵⁾ he states that 52,2 % of his sample were female, also disagree with study conducted by ⁽¹⁶⁾ who assert that male comprise the majority of study participants. the vast majority of patients in both groups fall within the 50-59 age range, with 10 (33 %) in the study sample. A study by ⁽¹⁷⁾ Supports these findings, showing that the mean age was 53,92 ±6,75 years, and that more than half of the groups under examination were between the ages of 50 and 60, and our findings concur with those of ⁽¹⁸⁾ who show the majority of patients were between the ages of 48 and 57. More than two-thirds of the sample 25 (83 %) were married, This result was corroborated by ⁽¹⁹⁾ "Effect of compliance to the discharge instructions among patients with internal fixation for hip fracture", which indicating that most of the two groups under study were married. Also agree with ⁽²⁰⁾ they mentioned that most of the sample were married with 53,3 %. Concerning educational level, a significant proportion of patients in sample exhibit low levels, with 8 (27 %) being illiterate (Primary Graduates). my study agrees with study by ⁽²¹⁾ who state that sample's educational attainment, 9 (30 %) of the patients in the study group and 11 (36,7 %) of the patients in the control group had completed primary school. Regarding place of residency, most patients in sample live in urban areas 22(73 %). This present study agrees with ⁽²²⁾ who discovered that every group in both groups under study lived in urban areas. Also our study was relevant with (2024) ⁽²³⁾ noting that a large percentage (63 %) of the patients in the sample were from urban areas. Regarding occupation, higher percent individuals in study sample were independent contractors at (37 %), This result is consistent with the study by ⁽²⁴⁾ which found that the control sample (n=13; 43,3 %) and the majority of the study subjects (n=10; 33,3 %) were freelance, Additionally, 40,0 % of patients in the study group and 33,3 % of patients in the control group were self-employed, according to findings by ⁽²⁵⁾. Related to the results of our study, 43 % of the participants are classified as overweight based on body mass index indications. These findings are corroborated by ⁽²⁶⁾ which aim to "Effectiveness of Instruction Program in Improving Balance Level among Seniors with Osteoporosis". Table 2 Activities of Daily Living our results demonstrate that the scores across all domains of Activities of Daily Living (ADLs) were higher in the post-test compared to the pre-test after intervention, corroborated by research conducted by ⁽²⁷⁾ studied the efficacy of an intervention comprising patient education. They observed a significantly greater increase in activities of daily living (ADLs) such as dressing and grooming, eating, walking,

reaching, and overall activity in the study group compared to the control group. Also our finding aligns with the studies conducted by ⁽²⁸⁾ entitled “Effect of Implementing a Discharge Plan on Functional Abilities of According to the findings of “Geriatric Patients with Hip Fractures,” the research group preferred the ADLs that returned to their pre-fracture level three months after discharge, including feeding, bowel and bladder continence, grooming, dressing, and transporting, following these were activities that demonstrated greater difficulties in regaining the pre-fracture level, such as walking, showering, climbing stairs, and using the restroom. Figure 1 illustrates that, there is a marked improvement in the study sample percentage of total knowledge from (60 %, 40 %, 0 %) poor, fair, good, respectively. pre of intervention program implementation, into (poor 0 %, fair 23,3 %, good 76,7 %) immediately post intervention. My finding agrees with study conducted by ⁽²²⁾ shows that, in comparison to the control group, the study group’s percentage of total knowledge improved significantly from 22,6 % before the implementation of the educational program to 74,1 % right after and to 93,1 % after a month of the program’s implementation. Table 3 Our finding show that there no significant link was detected between patients’ overall information scores in the study sample and the sociodemographic variables: age, marital status, level of education, residency, and occupation. accept gender at the pretest, it was highly significant, and at the posttest, it was significant. In relation to BMI, it was non-significant at the posttest but significant in the pretest. Such results are consistent with the study of ⁽²⁶⁾ who found that Association Between Osteoporotic Patients’ Balance Level and their Sociodemographic (gender, age, level of education, marital status, and occupation) data for study group. that all sociodemographic non-significant except level of education was significant. Also, our results agree with. ^(29,30,31) there was no significant discrepancy in the other basic and clinical findings such as BMI.

Limitation of the study

The study included only 30 patients, representing a limited sample size, as most participants had concurrent fractures or were illiterate. Additionally, some patients were excluded due to their inability to read and write.

CONCLUSIONS

Patients undergoing proximal femoral nailing for an intertrochanteric fracture exhibited a considerable improvement in knowledge, satisfaction, and outcomes following the adoption of the intervention program, compared to pre-intervention levels, with a highly statistically significant difference ($P \leq 0,001$). Furthermore, the study sample’s scores for activities of daily living (ADLs) and total knowledge demonstrated a positive association both immediately after the intervention and three weeks later.

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CONFLICT OF INTEREST

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Writing - proofreading and editing: Ali Mohammed Fathi, Wafaa Abd Ali Hattab.