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DOI URL: <http://dx.doi.org/10.21474/IJAR01/19180>**RESEARCH ARTICLE****RISK OF SUBSEQUENT HIP FRACTURES AND MORTALITY FOLLOWING LOW VELOCITY
TRAUMA IN THE ELDERLY POPULATION****Dr. Shantanu Singh****Manuscript Info****Manuscript History**

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Abstract

This study investigates the risk of subsequent hip fractures and mortality following low-velocity trauma in elderly populations. Conducted over 18 months at Tertiary Care Institute of Central India, the study included 100 patients aged over 60 years who had experienced hip fractures due to low-velocity trauma. Data were collected, analyzed, and statistically evaluated. The study aimed to identify the correlation between initial fractures and the risk of subsequent fractures and mortality within a year.

*Copy Right, IJAR, 2024., All rights reserved.***Introduction:-**

Hip fractures are significant health issues among the elderly, often leading to severe disability, increased mortality, and substantial healthcare costs. These fractures typically occur due to low-velocity trauma, such as a simple fall from standing height, and are strongly associated with decreased bone mineral density (BMD) and other age-related factors. Women are particularly vulnerable due to faster bone density loss and higher fall risk^{1,2}.

Previous studies have demonstrated that an initial hip fracture significantly increases the risk of subsequent fractures and mortality. The intertrochanteric fractures are notably common among the elderly, contributing to high morbidity and mortality rates¹.

Aim and Objectives:-**Aim:-**

To study the risk of subsequent hip fractures and mortality following low-velocity trauma in the elderly population.

Objectives:-

1. To investigate whether an initial hip fracture in the elderly leads to an increased risk of subsequent fractures.
2. To analyze the mortality rate within one year following the initial fracture.

Material and Methods:-

The study was a cross-sectional study with prospective follow-up, conducted over a period of 18 months. The study population consisted of patients aged over 60 years who had experienced hip fractures and were either attending the outpatient department (OPD) or admitted to the Department of Orthopaedics at Tertiary Care Centre of Central India during the study period. The sample size for the study was 100 patients.

Inclusion criteria for the study were patients aged over 60 years who had sustained hip fractures due to low-velocity trauma. Exclusion criteria included patients aged below 60 years, those with hip fractures resulting from high-

velocity trauma, patients who died during the index fracture event, and patients who did not provide voluntary informed consent.

Methodology:-

All patients meeting the inclusion criteria were thoroughly briefed about the study. Written informed consent was obtained before including them in the study. Data regarding age, sex, comorbidities, trauma history, and treatment outcomes were collected using a customized proforma.

Follow-Up Protocol:

Patients were followed up monthly for a year post-trauma, either physically, telephonically, or via video call. Data on subsequent fractures and mortality were recorded.

Outcome Measures:

The primary outcomes were the incidence of subsequent fractures and mortality within 12 months following the initial fracture.

Statistical Analysis:

Data were analyzed using IBM SPSS Version 20.0. Descriptive statistics were presented as numbers and percentages, and the Pearson Chi-square test was used to assess the association between variables, with a p-value <0.05 considered statistically significant.

Observations and Results:-

Patient Demographics

Table 1:- Age Distribution.

Age Group (Years)	Number of Patients	Percentage
60-70	53	53%
71-80	39	39%
>80	8	8%

Table 2:- Sex Distribution.

Sex	Number of Patients	Percentage
Male	42	42%
Female	58	58%

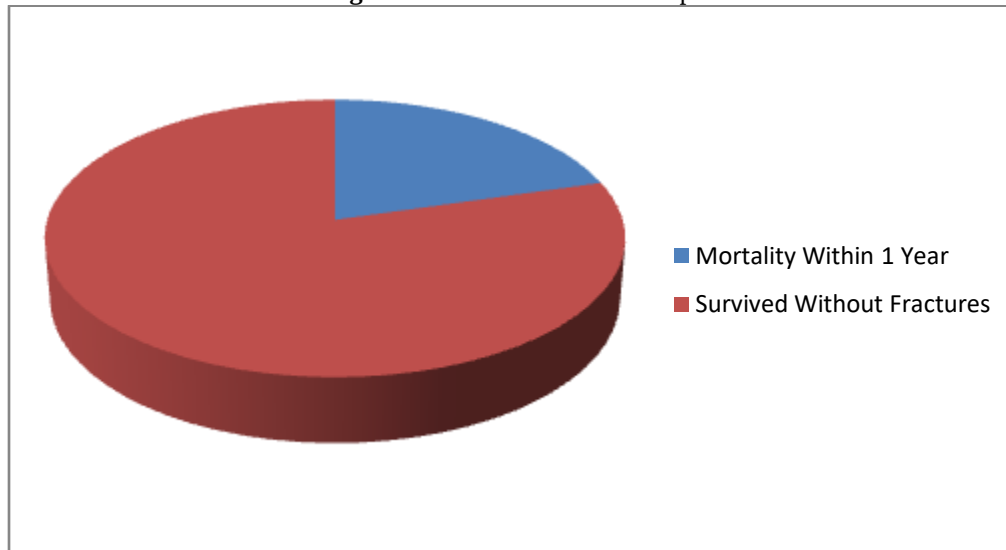
Table 3:- Comorbidities Among Patients.

Comorbidity	Number of Patients	Percentage
Diabetes Mellitus	30	30%
Cardiovascular Disease	25	25%
Chronic Kidney Disease	15	15%
Chronic Liver Disease	10	10%
Others	20	20%

Outcome at Follow-Up

Table 4:- Subsequent Fractures and Mortality.

	Number of Patients	Percentage
Subsequent Fractures	12	12%
Mortality Within 1 Year	18	18%
Survived Without Fractures	70	70%

Figure 1:- Outcome at Follow-Up.**Mortality Rate**

The study observed that 18% of the patients succumbed within one year following the initial hip fracture. This high mortality rate aligns with findings from similar studies, underscoring the severe impact of hip fractures on the elderly⁵.

Discussion:-

Osteoporosis, characterized by low bone mass and microarchitectural deterioration, significantly increases the risk of fractures. Globally, osteoporosis affects millions, with one in three women and one in five men expected to experience a fragility fracture^{2,3}.

Various studies have indicated that following an initial hip fracture, the risk of subsequent fractures is substantial, particularly within the first year. For instance, a study by Brown et al. (2021) reported that the mortality risk doubles within the first year following a hip fracture⁴.

The findings of this study corroborate existing literature on the high risk of subsequent fractures and mortality following an initial hip fracture in the elderly. The observed high mortality rate within a year of the initial fracture underscores the critical need for improved management and preventive strategies in this vulnerable population^{1,5}.

Risk Factors

1. **Decreased BMD:** Osteoporosis significantly contributes to the high incidence of hip fractures. BMD screening and osteoporosis management are essential preventive measures.
2. **Increased Fall Risk:** Age-related factors such as poor vision, balance issues, and muscle weakness increase the fall risk.
3. **Comorbidities:** Conditions like diabetes and cardiovascular diseases exacerbate the risk of fractures and poor recovery outcomes^{5,6}.

Table 5:- Risk Factors for Subsequent Fractures and Mortality.

Risk Factor	Influence on Fracture Risk	Influence on Mortality Risk
Decreased BMD	High	High
Increased Fall Risk	High	Medium
Comorbidities	Medium	High

Conclusion:-

This study highlights the critical issue of hip fractures in the elderly, emphasizing the significant risk of subsequent fractures and mortality following an initial low-velocity trauma-induced fracture. Effective preventive and management strategies are essential to reduce the burden of hip fractures and improve outcomes in this population.

Recommendations:-

1. **Routine Screening:** Regular BMD and fall risk assessments should be conducted for elderly individuals.
2. **Comprehensive Care:** Post-fracture care should include rehabilitation programs focusing on physical therapy, nutritional support, and medical management of comorbidities.
3. **Preventive Strategies:** Implementation of fall prevention programs and osteoporosis treatment protocols to mitigate the risk of fractures.

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