

# Observation on the Risk of Falling and Self-efficacy in Elderly Patients with Hip Fracture

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**Abstract: Objectives:** To study the risk of falling and self-efficacy in elderly patients with hip fracture.

**Methodology:** Forty elderly patients with hip fractures that were caused by falling were admitted into our hospital from April 2018 to April 2019, and were enrolled into this study. All patients were assessed by using the Morse Fall Scale(MFS) and Falls Efficacy Scale(FES).The basic situation of the patients with hip fractures caused by falling and the scores of MFS and FES before and after falling were evaluated. **Results:** Results showed that the number of patients with femoral neck fractures accounted for 70% out of all patients, and the number of patients with intertrochanteric fractures accounted for the remaining 30% of the patients. The number of patients with academic qualification below primary school is 16, the number of patients with middle high school education is 11 and the number of patients with high school education and above is 13. Slipping is the cause of hip fracture that accounted for the most in patients, followed by outing activities, whereas least patients with hip fractures was caused by falling in nursing home. There were 29 patients' who used crutches or walking aids and this number was more than that of those who required the devices. After the MFS and FES analyses, the results (scores of MFS and FES) showed that the risk before the fall was lower. In contrast, the risk of fracture and post-surgery after the fall was greatly increased. Conclusion: The elderly patients with hip fractures were found to have increased risk of falling and thus, these patients require good care.

**Keywords:** *elderly hip fracture; risk of falling; self-efficacy*

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## 1 Introduction

According to the analysis and definition of falls internationally, it can be clearly understood that falling is an action caused by a spontaneous and sudden change in position<sup>[1]</sup>. The criteria of falling involved in this study included the conditions of the falling were not caused by violent, hemiplegia, ambiguity or epilepsy. According to relevant incomplete statistics, there were one-third of the elderly aged 65 years old and above will fall down every year, and the number of falling is different for every elderly, but it will increase with the age of the elderly<sup>[2]</sup>. In addition, investigation showed that the probability of falling in the patients who is over 80 years old was 50% every year. Falling may result in the clinical symptoms such as traumatic clefts, brain injury, trauma, bone fractures, soft tissue injuries and etc., and severe conditions may even cause death to the patients<sup>[3]</sup>. In the hip fracture survey, the result showed that more than 90% of patients with hip fractures were caused by falling<sup>[4]</sup>. Therefore, this study was focusing on the risk of falling and self-efficacy in elderly patients with hip fracture. The details are as follows.

## 2 Information and methods

### 2.1 Basic clinical data

In our study, 40 patients with hip fractures which caused by falling were selected from our hospital, and all patients were evaluated for Morse Fall Scale(MFS) and Falls Efficacy Scale(FES), including the type of fracture, the level of education, the type of falling, the usage of crutches or walking aids, etc. There were 23

male patients and 17 female patients who aged between 66 and 86 years old, with a median age of (75.64±1.64) years old. All patients agreed to the study and had signed the relevant consent form.

## 2.2 Methods

MFS mainly refers to the Morse Falls Assessment Scale, which includes: the condition of receiving intravenous treatment, falling records, gait analysis, mental state, clinical diagnosis, the need of assisted walking and etc., different content has different scores. If the total scores are between 0 and 24, it indicates that the patient does not have a risk of falling. When the total score is between 25 and 45, it indicates that the patient is at low risk of falling. When the total score is above 45, it indicates that the patient has a high risk of falling.

FES mainly refers to the self-efficacy of the elderly during daily activities and the confidence level of not falling. There are mainly ten questions and the scores of each question are different. The scores floating within 1 point to 10 points and 1 point is represent the patient is very certain that he/she will not falling. 10 points are representing as the patient is thinking that he/she will fall down easily. A total of 100 points for all the 10 questions, and a patient's score of 70 or more indicates that they are afraid that they will fall down easily. According to the survey results, the FES evaluation form is one of the important evaluation forms for the elderly who have low exercise ability and staying at home for long time.

## 2.3 Observation indicators

A retrospective analysis of elderly patients with hip fractures due to falling was performed; the risk of

falling on patients before falling, the risk of falling on patient after falling and admitted to hospital due to bone fracture and the risk of falling on post-surgery were investigated and analyzed. Then the investigators would survey the elderly patients and their family's member about the relevant questions, and requests the patients and their families to answer according to the actual situation. The investigators will sort and analyze the investigation records, and finally check all the investigation items one by one to ensure the investigation results are accurate.

## 2.4 Statistical analysis

The data involved in this study were tested and analyzed by SPSS 17.0 or SPSS19.0 software. The clinical total effective rate and the rate of adverse reaction were expressed as "rate"(%), and the data were analyzed and compared by using chi-square( $\chi^2$ ) test. Values with  $P < 0.05$  were considered statistically significant.

## 3 Results

### 3.1 Basic situation of patients with hip fracture caused by falling

Forty elderly patients with hip fracture were selected in this study. There were 32.5% of the patients with academic qualification of high school or above, and 72.5% of the patients were without the use of crutches or walking aids. The larger number of patients with hip fracture were caused by slipping, followed by the patients with hip fracture were caused by outing activities and the least number of patients with hip fractures were caused by falling in the nursing home. See Table 1 for details.

Table 1 Basic situation of patients with hip fracture caused by falling

Group	proportion
Femoral neck fracture	28(70%)
Intertrochanteric fracture	12(30%)
Primary school and below	16(40%)
Middle high school	11(27.5%)
High school or secondary school	10(25%)
College degree or above	3(7.5%)
Falling during outing activities	14(35%)
Falling at nursing home	10(25%)
Slipping or tripping	16(40%)
Use crutches or walking aids	11(27.5%)
Not using crutches or walking aids	29(72.5%)

### 3.2 Comparison of MFS and FES scores before and after falling

After MFS and FES investigation, the patients showed

low risk before falling, and the risk of falling was higher in bone fractured after falling and post-surgery. See Table 2.

**Table 2 Comparison of MFS and FES scores before and after falling**

Group	Before falling	Hip fracture after falling	Post-surgery
MFS	36.32±6.81	69.66±6.81	58.05±16.81
FES	70.64±5.92	82.37±4.73	73.41±4.86
T	24.0549	9.6949	5.5516
P	<i>P</i> <0.05	<i>P</i> <0.05	<i>P</i> <0.05

## 4 Discussion

Various body function of elderly is declining, therefore, the probability and frequency of falling is increased. In general, the occurrence of falling in the elderly is not unexpected, it is due to the combination of various risk factors that exists in the elderly, thus it can be explained that the falling actually can be prevented and controlled early<sup>[5]</sup>. In addition, the elderly patients do not know about their own actual situation clearly, and their self-assessment on own athletic ability is not accurate. Even if they know that they have a certain risk of falling, they are not willing to rely on crutches or walking aids<sup>[6]</sup>. Other research of scholars also had shown that the elderly are generally psychologically dissatisfied with their old age, but due to the increasing age, the muscles, bones, body balance, joints and other parts of the elderly will lost some of the proper functions, these are the reasons why they are easily to falling during the activities<sup>[7]</sup>. It is a need to carry out appropriate education on safety and protection to the patients who aged 65 years old. Moreover, another factor that causes falling in elderly patients is environmental factors. Some environmental safety management is not achieving high standard, thereby it is easily to cause patients to slip and falling. In this situation, it is necessary to strengthen the education of outdoor safety to the elderly patients, and patients' education for fall prevention education must be carried out to further improve the awareness of self-protection of the patients. In addition, with the high aging rate of China's population, the number of elderly people living in the nursing home is increasing. Therefore, the elderly nursing home must strengthen the education of the elderly about the falling prevention, and at the same time to further improve the professional nursing skills of the nursing staff and also improve the out-patient care for the elderly patients. In general, elderly patients have lower risk of falling before any

falling down and the FES score also shows that the rate of fear of falling on patient before any falling is lower, therefore, it is necessary to teach the patients about the falling prevention education. It is not only for those patients with low risk of falling, but also for those patients with high risk of falling. In other hand, after the patients' hip fractured by falling, the relevant MFS and FES scores will be significantly increased and this indicating that even if some patients do not have a history of falling, their risk of falling is relatively high, and the probability of psychological fear of falling is also greatly increased. This situation will cause more difficulties in the subsequent clinical treatment, the patients were not complying with the clinical treatment, and they fear of falling down again and thus further distract the progression of the corresponding rehabilitation training. These will increase the chance of falling in patients' daily life. Therefore, for such cases, the nursing staff should carry out personal care to every elderly patients with hip fracture who admitted in hospital for treatment, including health education and psychological intervention, and also continue follow-up the patient after the patient was discharged from the hospital. The conditions of patients in taking medicine and rehabilitation training, the patients' lifestyle and habits and etc. were undergo investigation and to ensure the patients to maintain a good and healthy lifestyle. Subsequently to improve the rehabilitation and recovery part of hip fractured of the patients.

In this study, the number of patients with femoral neck fractures accounted for 70% of patients, and the number of patients with intertrochanteric fractures accounted for the remaining 30% of patients. There were 16 of patients with academic qualification below primary school, 11 of patients with middle high school education and 13 of patients with high school education and above. Sixteen patients with hip fractures were caused by slipping or falling, followed by the 14 patient

with hip fracture were due to the outing activities. Whereas there were only 10 patients with hip fractures were caused by falling in nursing home. Twenty nine of patients did not use crutches or walking aids and this number was higher than that of the group of patients who used crutches or walking aids. After the MFS and FES surveys, the scores before falling showed a lower risk ( $36.32\pm 6.81$ ,  $69.66\pm 6.81$ ,  $70.64\pm 5.92$ ,  $82.37\pm 4.73$ ), but the risk of fracture after falling and post-surgery greatly increased ( $58.05\pm 16.81$ ,  $73.41\pm 4.86$ ). In Wang Ying's study<sup>[8]</sup>, elderly patients with hip fracture were usually more likely due to slipping or falling easily(37.9%). Moreover, the MFS and FES scores on the risk of falling of the patients before falling is relatively lower than that of the scores after falling and the score after 4 months of surgery, and the results were similar with our current results.

In conclusion, elderly patients with hip fracture have different risk of falling and self-efficacy, but elderly patients generally have a risk of falling and need to strengthen attention and prevention.

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