

Elderly with femoral neck fracture: analysis of falls and functional changes

Elisabete Barreira, André Novo, Leonel Preto, Eugénia Mendes
School of Health, Polytechnic Institute of Bragança – Portugal



Keywords: Elderly, femoral neck fracture, functional capacity || andre@ipb.pt

INTRODUCTION

According to the Portuguese Ministry of Health there are in Portugal more than 9500 femoral neck fractures each year, which reached hospital expenses of around 52 million euros. The same source estimates the mortality from 20% to 30% over a year after fracture; referring to severe disability it reaches a prevalence of 40% in the same period. Scientific evidence points out that hip fractures tend to occur more often in the elderly, especially after age 85 (Marks, Allegrante, MacKenzie, & Lane, 2002), and are more common in women. There is an increased incidence of proximal femur fractures with age due to the increase of intrinsic factors and the decrease of functionality (Bloch, et al., 2010) and the loss of mineral density and bone mass associated with aging (Wei., Hu. Wang., & Hwang, 2001). We believe that the description of the fall and its characteristics could improve our understanding of the biomechanics of this process.

OBJECTIVE

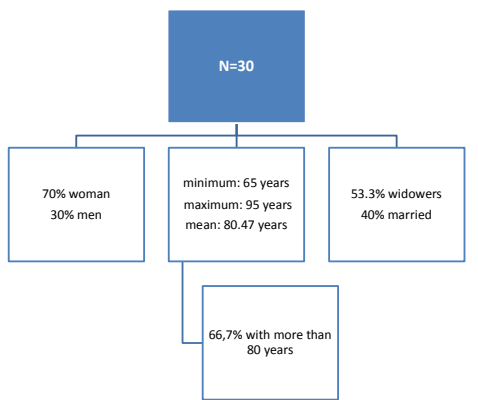
The objectives of this study were to assess the circumstances in which occurred falls resulting in fracture of the proximal end of the femur, identify intrinsic and environmental factors in the fall, to analyze the report of that event by the patient, so as to understand the biomechanics of fall and evaluate retrospectively the functional independence to perform activities of daily living before the fall and six months after hospital discharge.

METHOD

This research is a descriptive, longitudinal, prospective correlational study with a quantitative methodology. The sample consisted of 35 elderly patients at the first assessment and thirty in the second, all admitted to the trauma unit of the Bragança Hospital Unit, Portugal. Data collection took place between February and June 2014 and the second evaluation was conducted between August and December 2014. It was intended to assess the degree of recovery of functional ability after fracture of the proximal end of the femur, the fear of falling and characterize the falls. The instrument used for calculating the degree of functional recovery was the Katz index.

RESULTS

Of the sample studied 33.3% had femoral neck fracture and the remaining 66.6% had trochanteric, subtrochanteric and intertrochanteric fractures. Surgical treatment was instituted in 93.3%. The values of the Katz index decreased from 15.53 to 12.93 points. The degree of recovery of functional independence is significantly higher in patients who went under osteosynthesis with hip prosthesis, whether it was partial or total.

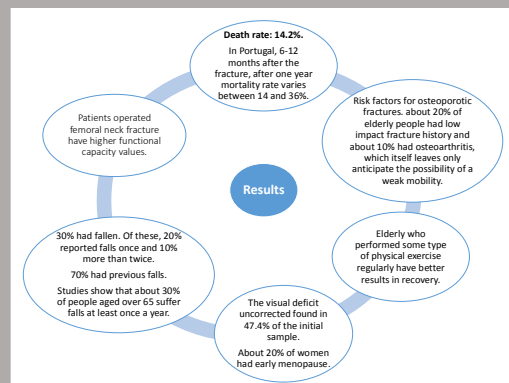


Clinical variables, comorbidities, previous falls and regular physical activity	N	%
Other falls in the last year		
Yes	9	30.0
No	21	70.0
Total	30	100
Number of falls in the last year		
1 fall	6	20.0
2 falls	2	6.7
3 falls	1	3.3
None fall	21	70.0
Total	30	100
Have an illness		
Yes	25	83.3
No	5	16.7
Total	30	100
Did exercise regularly		
Yes	8	26.7
No	22	73.3
Total	30	100

Characterization of the type of fracture and treatment	Frequência		
	N	%	
Type of fracture	Neck of femur	10	33.3
	Trochanteric	12	40.0
	Subtrochanteric	4	13.3
	Intertrochanteric	4	13.3
Total	30	100	
Treatment	Surgical	28	93.3
	Conservative (rest)	2	6.7
Total	30	100	
Surgical treatment	Rod endomedular	18	64.3
	Total Hip Replacement	2	7.1
	Partial prosthesis	8	28.6
	Total	30	100

Type of fall, fracture mechanism, fear and discharge	N	%
A fratura resultou		
Fall of his own height	21	70.0
Fall of more than 50cm	1	3.3
Fall in steps or stairs	3	10.0
Pain and fall after pain	2	6.7
Tripping with wagon	1	3.3
Fracture with mobilization	1	3.3
Pain and did not fall	1	3.3
Total	30	100
Local da queda		
Street	4	13.3
In the yard or garden	7	23.3
Inside the building	19	63.3
Total	30	100
Rotação sobre o corpo		
Yes	8	26.7
No	22	73.3
Total	30	100
Utilizou as mãos para aliviar		
Yes	4	13.3
No	26	86.7
Total	30	100
Tem medo de cair após alta		
Yes	22	73.3
No	8	26.7
Total	30	100
Após alta regressou ao domicílio		
Yes	17	56.7
No	13	43.3
Total	30	100

Katz index before and after the fall and degree of recovery					
Indicator	N	Minimum	Maximum	Mean	Coefficient of variation
Katz before	30	6	18	15.53	3.04
Katz after	30	6	18	12.93	4.27



CONCLUSION

The variables that most influenced the functional recovery were: the type of fracture and the type of osteosynthesis. There was a decline in functional capacity and in parallel an increase in the fear of falling.

REFERENCES

Aizen, D., Drenker, Swartzman, & Michalak. (2003). Risk Factors and Characteristics of Falls Resulting in Hip Fracture in the Elderly. *Imaj*, 5, 333-336.
 Bloch, F., Thihaud, M., Dugas, B., Brette, C., Rigaud, A., & Kemoun, G. (2010). Episodes of falling among elderly people: a systematic review and meta-analysis of social and demographic pre-disposing characteristics. *Clinics*, 65(9), 895-903.
 Lin, P., & Chang, S. (2004). Functional recovery among elderly people one year after hip fracture surgery. *J Nurs Res*, 12(11), 72-82.
 Marks, R., Allegrante, J., MacKenzie, R., & Lane, J. (2002). Hip fractures among the elderly: causes, consequences and control. *Ageing Research Reviews*, 2, 57-93.
 Pedersen, S., Borgbjerg, F., Schousboe, B., Pedersen, B., Jørgensen, M., Dams, B., & Lauritzen, J. (2008). A Comprehensive Hip Fracture Program Reduces Complication Rates and Mortality. *Journal of the American Geriatrics Society*, 56, 1831-1838.
 Rossini, M., Mattarei, A., Braga, V., Vianina, O., Zambarda, C., Benini, C., ... Adams, S. (2010). Risk factors for hip fracture in elderly persons. *Reumatismo*, 62(4), 273-82.
 Wei, H., Wang, & Hwang. (2001). Fall characteristics, functional mobility and bone mineral density as risk factors of hip fracture in the community-dwelling ambulatory elderly. *Osteoporosis Int*, 2, 1050-1055.