Risk factors analysis and rehabilitation nursing countermeasures of senile osteoporotic fracture.

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Abstract

Objective: To analyze the risk of elderly patients with osteoporotic fracture and to discuss the factors of rehabilitation nursing.

Methods: 150 cases of senile fracture patients treated in our hospital from May 2016 to May 2017 were selected as the research object, and were divided into non-osteoporotic fracture group (n=100) and osteoporotic fracture group (n=50) according to the nature of fracture. The Logistic regression model was used to analyze the risk factors of osteoporotic fracture in the elderly and the specific rehabilitation nursing countermeasures were discussed.

Results: No significant difference in body weight, blood lipid, smoking, drinking and comorbidity between the two groups (P>0.05). There were significant differences in sex, age, adequate light or not, and bone mineral density (P<0.05). Logistic regression analysis shown that female, older age and lower bone density were independent risk factors for osteoporotic fracture in the elderly (OR: 2.885, 3.233, 3.885, 95% CI: 1.450~4.225, 1.720~5.774, 1.898~6.774, P<0.05).

Conclusion: female gender, older age, lower bone mineral density were independent risk factors for osteoporotic fracture in the elderly, the instruction of exercise rehabilitation to be guided to prevent the complications, diet and medication care, psychological intervention, discharge guidance can help improve effects of nursing care, to improve patient's prognosis.

Introduction

Senile osteoporosis fracture is one of the worldwide common types of fracture [1]. The incidence of these fractures is concentrated in the thoracic spine, lumbar spine, hip and forearm, which not only affects the daily activities of patients, but also poses a serious threat to their lives and safety [2]. Only 60% of the elderly population are aware of the osteoporosis, and osteoporosis causes less than 10% of fractures [3]. Due to the concealment of osteoporosis, the diagnosis is more difficult, and it is characterized by high rate of missed diagnosis [4]. With the growth of the aged, the physical function of the elderly is deteriorating. Once the elderly osteoporotic fracture would inevitably lead to a series of complications such as bedsores, deep vein thrombosis, hypostatic pneumonia, urinary tract infections. Besides, the risk of fracture again is greatly increased, so effective prevention and rehabilitation care are particularly important [5]. In view of this, this study focuses on the analysis of risk factors for elderly osteoporotic fracture and rehabilitation nursing strategies.

Materials and Methods

General information

150 cases of senile fracture patients treated in our hospital from May 2016 to May 2017 were selected as the research object, with 81 males and 69 females, the age ranged from 62 to 80 years old, the average age of 70.24 ± 1.06 years. The duration of the disease was from 0.5h~10h, with the average duration was (2.35 ± 0.12) h; the fracture site: 88 cases were thoracolumbar spine, 62 cases were hip; the symptoms: present severe pain in 59 cases, the 91 cases were limited mobility. According to the nature of fracture were divided into non-osteoporotic fracture group of 100 cases and osteoporotic fracture group of 50 cases. Inclusion criteria of the study: (1) age ≥ 60 years of age; (2) no blood diseases or coagulation disorders; (3) the diagnosis of osteoporotic fracture was following the line with Chinese Medical Association Orthopedic Branch of the "osteoporosis fracture diagnosis and treatment Guide "related content. The exclusion criteria: (1) bone metastases, multiple myeloma and other bone tumors and hyperparathyroidism and other metabolic bone diseases caused by secondary osteoporotic fracture; (2) with severe cognitive impairment; (3) the patients and/or family members were not accepted with the research program.

Methods

First of all, the basic data of two groups were collected, including gender, age, body weight, lipids, smoking, drinking, complications, adequate light or not, and bone mineral density. The Differences of factors put into the Logistic regression model, and analysis of its independent risk factors.

Statistical methods

In this study, all of the data were processed using SPSS17.0 statistical software, the measurement data using mean ± standard deviation and T test, for continuous data using the rate (%), and χ^2 test, the P<0.05 means difference was statistically significant.

Results

Comparison of the basic data of two groups' patients

The results of our research showed no significant difference in body weight, blood lipid which included Total cholesterol (TC), Triglycerides (TG), High-density lipoprotein cholesterol (HDL) and Low-density lipoprotein cholesterol (LDL), smoking, drinking and comorbidity between the two groups (P>0.05). There were significant differences in sex, age, adequate light or not, and bone mineral density (Table 1).

Table 1. Comparison of the basic data of two groups' patients.

Factors		non-osteoporotic fracture group (n=100)	osteoporotic fracture group(n=50	χ^2/t	P
Gender [n (%)]	male	54 (54)	17 (34)	8.117	0.004
	female	46 (46)	33 (65)		
Age ($\bar{x} \pm s$, y)		67.44 ± 1.16	72.33 ± 1.17	8.489	0.017
Body mass($\bar{x} \pm s$, kg)		56.78 ± 1.23	56.80 ± 1.20	1.002	0.998
blood lipids ($\bar{x} \pm s$)mmol/L	TC	4.95 ± 0.35	4.98 ± 0.32	1.003	0.997
	TG	1.17 ± 0.11	1.18 ± 0.12	1.001	0.999
	HDL	1.25 ± 0.25	1.27 ± 0.23	1.002	0.998
	LDL	2.89 ± 0.21	2.90 ± 0.20	1.001	0.999
Smoking [n (%)]	yes	64 (64)	3570)	0.814	0.367
	no	36 (36)	1530)		
Drinking [n (%)]	yes	55 (55)	30 (60)	0.512	0.474
	no	45 (45)	20 (40)		
Complications [n(%)]	hypertension	22 (22)	10 (20)	0.121	0.728
	diabetes	15 (15)	8 (16)		
	Coronary heart disease	8 (8)	5 (10)		
	others	5 (5)	3 (6)		
Sufficient sunshine [n (%)]	Yes	64 (64	15 (30)	21.859	0.000
	no	36 (36)	35 (70)		
Bone density ($\bar{x} \pm s$)		-1.55 ± 0.25	-2.77 ± 0.12	8.124	0.043

Risk factors for osteoporosis fracture in older age

Logistic regression analysis shown that female, older age and lower bone density were independent risk factors for osteoporotic fracture in the elderly (OR: 2.885, 3.233, 3.885, 95% CI: 1.450 4.225, 1.7205.774, 1.898~6.774, P<0.05), (Table 2).

Table 2. The risk factors for osteoporosis fracture in older age.

Influencing factors	B	S.E	Wald	P	OR	OR95%CI
Female	1.443	3.695	14.22	<0.05	2.885	1.450~4.225

Elderly	2.596	4.664	15.17	<0.05	3.233	1.720~5.774
Lower bone density	4.313	5.998	16.15	<0.05	3.885	1.898~6.774

Discussion

Currently, the world has entered an aging society, and the incidence of bone and joint injury in the elderly is significantly increased, especially in the aging population [6]. Existing reports have been reported that there is a close relationship between the incidence of the disease and the patient's age. Such as every 5-year-old population over the age of 65 years old, the risk of osteoporotic fracture for older people presenting got more than doubled chance [7]. The vast majority of patients with senile osteoporosis fracture need to be in bed for a long time, leading to circulatory system, respiratory system, urinary system were affected by severe condition, producing all kinds of complications and a serious threat to the safety of life, makes the mortality remains high, due to become the "invisible killer" of old people [8]. In view of the particularity of senile osteoporosis fracture and harmfulness, and to analyze the risk factors and rehabilitation nursing measures [9], on the one hand can effectively curb the excessive growth of incidence of the disease, clinical nursing intervention on the other hand can be provide strong guarantee work to achieve the ideal effect, have important research value.

Logistic regression analysis results in this study suggested that women, elderly, and lower bone density are independent risk factors for osteoporotic fracture in the elderly (OR: 2.885, 3.233, 3.885, 95% CI: 1.450~4.225, 1.720~5.774, 1.898~6.774, P<0.05). Specific reasons are as follows: (1) women. Estrogen levels in postmenopausal women over the age of 60 will significantly change, while in the body of estrogen is a class of hormones to promote bone formation, when its content changes dramatically when T cells will secrete tumor necrosis factor and Interleukin 7, which makes both the concentration increased and directly on osteoclasts, accelerate bone loss [10]. In the meantime, the elderly women after menopause follicle-stimulating hormone was significantly higher than before menopause, and the substance can directly enhance the function of osteoclast, making the bone absorption rate is greater than the rate of bone formation, leading to postmenopausal women become senile osteoporosis High-risk fracture population [11]. (2) The older age. Existing research shows that with age, the body's function were declining, a substantial decrease in muscle strength and flexibility makes the balance of the elderly population is seriously affected, under the coordination of instability prone to falls, fall down, etc. And cause fractures [12]. (3) The lower bone density. Bone mineral density is an important marker of bone mass, reflecting mineral density and skeletal strength in bone [13]. Lower bone density implies a decrease in bone mass and a decrease in skeletal strength, with a consequent increase in bone fragility and a substantial increase in the risk of fractures as bone strength decrease [14]. In addition, although women, elderly and low BMD are independent risk factors for osteoporotic fractures in the elderly, there is also a clear internal relationship between the three. Therefore, they must be considered in clinical practice.

Rehabilitation nursing for the elderly osteoporotic fracture mainly includes the following aspects: (1) the exercise instruction. Surgery is the most effective means of treatment of the disease, early postoperative nursing staff should actively urge to carry out whatever the passive training, such as the joint function of patients with passive training, and the use of massage, massage and other ways to improve the local tissue blood flow, improve the rehabilitation effect of [15]. In order to adapt to the passive training can be done after the active training, such as: knees, hip and leg movements, improve the stability of the whole joint function. Then, under the guidance of the nursing staff, the ability of daily activity exercise can be carried out, and the original self-care ability can be restored to the greatest extent. (2) Prevention of complications. Causes of senile osteoporotic fracture is not the cause of death in patients with complications such as fracture itself, but, therefore the nursing staff in the rehabilitation nursing should actively expand nursing complications around, such as timing: help patients to change positions and wipe the skin contact with the mattress to prevent the formation of pressure ulcer; use massage, elastic bandage and gradient pressure pump to improve site the blood circulation effect of fracture prevention of lower extremity deep venous thrombosis; close observation of skin changes and samples were collected for bacterial culture in patients with fracture, clear pathogens after use of antibiotics drug sensitive do predictive anti infection nursing [16]. (3) The diet and medication care. Usually, increase the calcium-rich, vitamin D, protein foods or fresh fruits and vegetables; try to avoid taking: spicy food, drink tea or coffee, salty/too sweet things, to ensure with a balanced nutrition intake. In the recommendation of medication are as following: reasonable calcium supplements and mainly oral, to ensure that the body to meet the needs of calcium (800 mg/d~1200 mg/d); Moderate intake of active vitamin D3, a dose of 0.25 μg/d~0.5 μg/d to promote bone formation and bone mineralization; Subcutaneous or intramuscular injection of calcitonin 50IU/d to improve the bone mineral density, and improve the quality of care to enhance the bone biomechanical properties; the scientific choice of bisphosphonates such as: alendronate Sodium, risedronate, and zoledronic acid to reduce the risk of re-fractures [17]. (4) The psychological intervention. As senile patients with osteoporotic fractures of the body and mind will have serious adverse effects, so the actively communicate between nurses and patients also their families to explain the causes of the disease, the risk factors, treatment, rehabilitation care and other contents with clearly noticed Who prompted them to form a good ideological understanding, to dispel the psychological recuperation of care, to prompt the patients to maintain a calm state of mind in the face of clinical work. At the same time, we actively communicated with the patients'

families, truthfully informed the patients about the difficulty of the treatment and the importance of rehabilitation nursing, changed their mistaken cognition and devoted more time and energy to care for the patients, in the meantime improved the latter's social support while creating a good situation. And take supervision to ensure that elderly patients with osteoporosis fractures prescribed by the doctor to carry out rehabilitation exercises.

In summary, female gender, older age, lower bone mineral density were independent risk factors for osteoporotic fracture in the elderly, the instruction of exercise rehabilitation to be guided to prevent the complications, diet and medication care, psychological intervention, discharge guidance can help improve effects of nursing care, to improve patient's prognosis.

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