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RESEARCH

FREQUENCY OF HIP FRACTURES ADMITTED TO A UNIVERSITY HOSPITAL FOR THE LAST TEN YEARS

ABSTRACT

Introduction: Hip fractures are an important cause of morbidity and mortality. We aimed to analyze the annual rate and demographic properties of the hip fractured patients who were operated in our university hospital.

Materials and Method: We evaluated 923 patients ove a 10-year period . Data on age, sex, injury patterns, and types of fractures were evaluated retrospectively.

Results: Sixty-eight (7.4%) of the patients had subtrochanteric femur fractures, 513 (55.5%) had inter-trochanteric femur fractures, and 342 (37.1%) had collum femoris fractures. According to years, in year 2000; 41 hip fractured patients were operated, in 2001; 58, in 2002; 48, in 2003; 63, in 2004; 65, in 2005; 121, in 2006; 111, in 2007; 123, in 2008; 154 and in 2009; 139 hip fractures were operated in our clinic. Mean age of the patients were 70.5 years. Five hundred thirty eight of them were females and 385 of them were males. Six hundred forty five of the injuries were due to low energy, the others were due to high energy injuries.

Conclusion: Hip fractures are frequent. In order to decrease the morbidity and mortality of the osteoporotic fractures, fracture prevention strategies should be developed and the patients should be returned to their daily activity levels as soon as possible.

Key Words: Hip Fracture; Mortality; Osteoporosis.

ARAŞTIRMA

BİR ÜNİVERSİTE HASTANESİNE, SON ON YILDA BAŞVURAN KALÇA KIRIKLI HASTA SIKLIĞI

ÖZ

Giriş: Kalça kırığı, ileri yaş grubunda sık karşılaşılan, önemli bir morbidite ve mortalite nedenidir. Biz bu çalışmada, üniversite hastanemizde ameliyat edilen kalça kırıklı hastaların yıllara göre dağılımını ve demografik özelliklerini incelemeyi amaçladık.

Gereç ve Yöntem: Son 10 yılda, kalça kırığı nedeni ile servisimizde yatarak tedavi gören 923 hasta geriye dönük olarak değerlendirildi. Yaş, cinsiyet, yaralanma mekanizması ve kırık tipleri incelendi.

Bulgular: Atmış sekiz hasta (%7.4) subtrokanterik femur kırığı, 513 hasta (%55.5) intertrokanterik femur kırığı, 342 hasta (%37.1) femur boyun kırığı nedeni ile tedavi edildi. Yıllara göre dağılım incelendiğinde 2000 yılında; 41 hasta, 2001 yılında; 58, 2002 yılında; 48, 2003 yılında; 63, 2004 yılında; 65, 2005 yılında; 121, 2006 yılında; 111, 2007 yılında; 123, 2008 yılında 154 ve 2009 yılında 139 hasta kalça kırığı nedeni ile servisimizde ameliyat edildi. Hastaların ortalama yaşı 70.5 idi. Hastaların 538'i bayan, 385'i erkek idi. Altı yüz kırk beş hasta düşük enerjili travma sonrası kalçasını kırmış idi. Diğer hastaların kırık nedeni yüksekten düşme veya trafik kazası gibi yüksek enerjili travmalar idi.

Sonuç: Kalça kırıkları sık görülen yaralanmalardır ve yaş ortalaması arttıkça görülme sıklığı artmaktadır. Basit düşmelerle bile oluşabilen osteoporotik kırıkların morbidite ve mortalitesini azaltmak için, kırıkların oluşmasını önleyecek tedbirler alınmalı ve hastalar günlük aktivite düzeylerine en kısa sürede döndürülmelidir.

Anahtar Sözcükler: Kalça Kırığı; Mortalite; Osteoporoz.

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Introduction

Hip fractures are among the most devastating injuries in the elderly. As life expectancy increases and the mean age of the population increases, the occurrence of osteoporotic fractures also increases (1). These fractures usually occur after low energy traumas in the elderly population with poor bone quality and also occur in young population due to high energy traumas. Hip fractures can also be seen in the presence of a primary or a metastatic tumor after a low energy trauma.

The impact of hip fractures goes far beyond immediate clinical considerations and extends into the domains of medicine, rehabilitation, psychiatry, social work, and medical economics. Treating geriatric hip fractures is further compounded by their growing numbers in the face of continually increasing pressures for health care cost containment (2).

In this study, we aimed to focus on the frequency of hip fractures admitted to our university clinic, which is a unique referral center for advanced trauma patients for almost thirty years, in our region.

Materials and Method

The medical files of hip fractured patients, who were hospitalized in our university hospital, orthopaedics and traumatology department, during the past ten years, between January 2000 to December 2009, were evaluated retrospectively. During this period, 923 hip fractured patients were hospitalized and operated. Some of the patients had femoral neck fractures, some had intertrochanteric femur fractures and some of them had subtrochanteric femur fractures. Pathologic fractures were excluded from the study.

In our daily practice, we treat some hip fractured patients by conservative treatment modalities. Our study group included; hospitalized and operated patients, in our orthopaedics department which is a university hospital, a trauma center in a rural area. Surgical treatment modalities changed according to the fracture type, bone quality and general health status of the patients. The surgical treatment modalities were hemiarthroplasty and open reduction and internal fixation methods, in this study group.

Data on age, sex, injury patterns and types of fractures were evaluated retrospectively. According to years, we evaluated the numbers of admissions of the operated patients, from our clinic archive. Because of our hospital being a unique referral center in our region for almost 30 years, most of the major traumas and patients having medical problems are referred to our hospital, so our study group included a high percentage of elderly patients having other medical problems. Most of the injury types were low energy traumas like simple falls while walking or rising up from bed, slipping in the bathroom etc. but most of these patients had concomitant medical diseases which made them referred to the university hospital.

In the orthopaedics department of the university hospital, number of experienced staff and the conditions of the hospital did not face a major change for the last ten years. Orthopaedics department has 6 associates, 12 residents and 40 beds for patients, the persons changed but the number did not change for the last ten years. The population of the city including its villages is almost 300 thousand, as it was 10 years ago.

The study was done with the approval of Edirne Clinical Studies Ethics Committee, with the protocol of EKAEK 2009/054 and with the number of 04/23.

Results

Sixty-eight (7.4%) of the patients had subtrochanteric femur fractures, 513 (55.5%) had inter-trochanteric femur fractures, and 342 (37.1%) had collum femoris fractures (Table 1).

Five hundred thirty eight of them were female and 385 of them were male (Table 2). Mean age of the patients were 70.5 years (Table 3). According to fracture types and age groups,

Table 1— Number of Fractures According to Years.

	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
ITF	22	27	35	41	39	73	63	56	84	73
CF	13	24	12	19	25	44	39	57	54	55
STF	6	7	1	3	1	4	9	10	16	11
Total	41	58	48	63	65	121	111	123	154	139

ITF = Intertrochanteric femur, CF = Collum femoris, STF = Subtrochanteric femur.

Table 2— Gender Disturbance of The Fractures According to Years

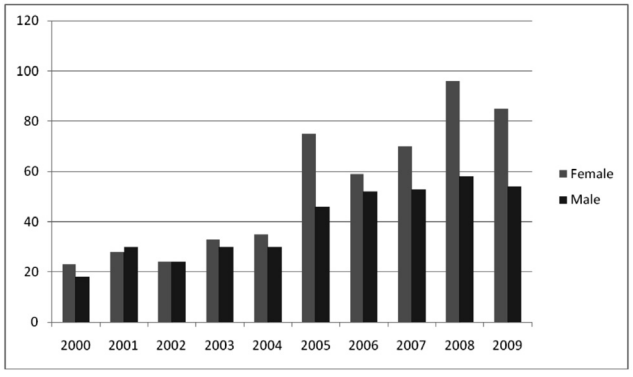
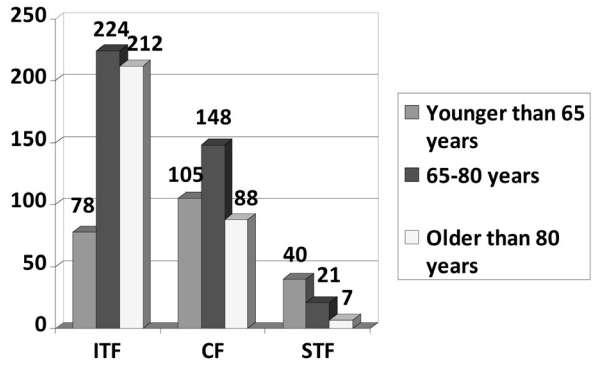


Table 4— Schematic Presentation According to Age Groups and Fracture Types.



most of the patients were between 65 and 80 years old (Table 4).

Six hundred forty five of the injuries were because of a low energy trauma. The others were high energy injuries like falls from height or traffic accidents.

Discussion

Since populations are aging worldwide, the mean age of patients sustaining osteoporotic fractures are also increasing (3). In our experience, for the last ten years, general health status of the hip fractured patients are getting worse as the mean age of these patients are getting older. Most of these hip fractured patients are in the elderly group having coexisting medical problems, which have been referred to our university clinic from smaller hospitals.

Hip fractures are the major osteoporotic fractures in terms of health outcomes, quality of life, and costs (4) and also have direct impact on public health since mortality and morbidity are high (5), and one of the main reasons for disability (6).

Several diseases including osteoporosis, cardiopulmonary diseases, neuromotor dysfunctions, diabetes and other medical problems are important causes of elderly hip fractures (6). Increase in the age-adjusted incidence of falls with accompanying deterioration in the age-adjusted bone quality may explain the reason for elderly hip fractures (5).

According to United Nations 2009 data, medium variant of lifetime of human being all over the world was 56 years in 1970, in 2000 it has grown up to 65 and by year 2050 it is expected to be 75.5 years (73.3 for men and 77.9 for women) (7). As advances in medicine and consciousness in health care increases, life expectancy at birth and also expectations from life will increase exponentially.

Depending on some epidemiologic studies, there were 1.66 million hip fractures world-wide in 1990. According to the epidemiologic projections, this worldwide annual hip fracture number will rise to 6.26 million by the year 2050 (5). In another epidemiologic study, the total number of hip fractures in men and women in 1990 was found 1.26 million, and the number is estimated to approximately double to 2.6 million by the year 2025, and 4.5 million by the year 2050 (8). No matter what the number of hip fractures will be, there is

Table 3— Mean Age of The Patients According to Fracture Types and Years

	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
ITF	74.7	68.3	76.4	70.5	77.1	79	75.1	73.7	76.6	74.5
CF	58.3	71.6	66.5	73.1	73.1	69.6	49.8	69.1	68.3	66.8
STF	54.4	68.1	43	54.6	71	72.2	50	44	60	58.5
Mean age	66.5	69.6	73.2	70.5	74.3	75.4	64.1	69.2	71.2	70.1

ITF = Intertrochanteric femur, CF = Collum femoris, STF = Subtrochanteric femur.

a reality that the numbers of hip fractures are increasing as the population of elderly people increase.

There is a marked geographic distribution in the incidence of hip fractures (9), and hip fractures are recognized to be a major public health problem in many Western nations, most notably those in North America, Europe and Oceania (10). In 1990, 26% of all hip fractures occurred in Asia, whereas this figure could rise to 37% in 2025 and to 45% in 2050 (8). The incidences of hip fractures are rising in men and women in many countries, and if the current trends in the United Kingdom continue, the number of hip fractures occurring each year will be more than double over the next 20 years (9). In a study from Sweden, authors found a 70% increase in the total number of fractures from 1985 up to year 2000. The annual number of hip fractures increased 39% in men and 25% in women during the study period (11). In another study, from Spain (Cantabria), the incidence of hip fractures in patients aged over 50 years, a total of 318 new hip fractures were recorded in 1988 and 490 in 2002 (54% increase) (12). Although most countries have an adequate hospital registration system, one of the limitations of our study is, we do not have a systematic registration system in whole country. The number of hip fractures in our entire region could not be counted so that the study group included only the hip fractured patients admitted to our hospital.

In our series, though number of trauma centers and orthopaedic surgeons around our hospital increased, number of hip fractured patients admitted to our hospital also increased from 41 patients in year 2000 to 154 patients in year 2008 (Table 5). There is a small decrease in 2009 according to year 2008 and increase trend; this may be because of the health system change in Turkey. There is a performance system which makes doctors earn points and money depending on the activities done in the hospital in government hospitals. There is an increase in the number of private hospitals for the last 3 years. So the unwillingness of the doctors in the government hospitals to refer the patient to another medical center and increasing number of private hospitals has caused the decrease for admittance to a university hospital.

Gender difference in hip fracture frequencies is another topic. The hip fracture incidences are about two times higher in women than in men, all over the world (5). In a worldwide study, 72% of the hip fractures occurred in women. Women's overrepresentation has been explained by women's lower bone mass and density and higher frequency of falling (5). Especially in the postmenopausal women (1/4 post-menopausal white women) hip fractures can happen due to falls and osteoporosis (13).

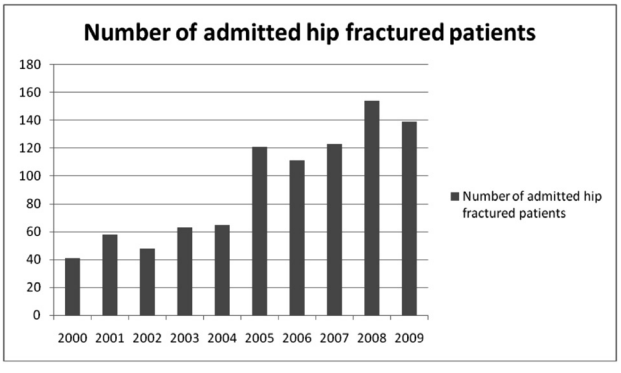
The reasons for differences in age- and sex-specific incidence is related with the low bone density of women at the time of maturity (peak bone density) and the accelerated bone loss that occurs after the menopause. Women live significantly longer than men, so that the prevalence of osteoporosis amongst elderly women is six-fold that of men (9). Approximately 40% of women will experience one or more fractures after the age of 50 years. At 50 years, the lifetime risk is 17.5% for hip fracture for women (14).

Neither geographical nor gender differences, management of hip fractures requires a wide spectrum of approaches from prevention to post-operative care (3). The socioeconomic impact of hip fractures increases all over the world, and there is an urgent need to develop preventive strategies (8). Fracture treatment is expensive, and rehabilitation not always successful, effective prophylaxis is the hope for minimizing the enormous social burden of hip fractures (13).

The age distribution of hip fractures underlines the need for earlier intervention in osteoporosis. Despite an increase in the population at risk and mean age of hip fractured women, there was a significant decrease in age-adjusted incidence in women but not in men (15).

The results suggest that osteoporosis will truly become a global problem over the next half century, and that preventive strategies will be required in parts of the world where they are not currently felt to be necessary (10). Most of our patients are in the elderly group and most of them are osteoporotic but only a small group has been medicated for osteoporosis prevention. A big group lives with their family but most of them are poor and most of the patients are not in a good nutritio-

Table 5— Schematic Presentation According to Age Groups and Fracture Types.



nal status. Most of the patients have cardiac, renal or endocrine diseases like diabetes mellitus.

First step for the prevention of elderly hip fractures should be the assessment of risk factors. However, some risk factors (family or fracture history, visual loss) can identify risk groups amenable to drug treatment or to preventive measures; however, many risk factors cannot be prevented or modified (14).

In our experience, osteoporosis prevention should be generalized in the elderly patient group. After an osteoporotic fracture, if the patient is not being medicated for osteoporosis, osteoporosis prevention should be started before discharging from the hospital. Early mobilization and rehabilitation programs should begin immediately after the operation and home exercises should be taught to the patients and their companions. Because of our hospital being a referral center, most of our hip fractured patients were elderly and most had coexisting medical problems increasing the morbidity and mortality rates. Prevention, treatment and rehabilitation in the postoperative period are the important steps of high risk group patients for hip fractures. As the population is aging, the numbers of hip fractured patients are increasing, so that prevention strategies should be developed in order to minimize hip fractures.

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