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Characteristics of the hip problems in Sanglah General Hospital April 2016 until April 2017

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ABSTRACT

Background: Problems surrounding the pelvis are usually associated with high morbidity and mortality. The most common problem is hip fractures, and falling is generally the leading cause. The incidence rate of hip fracture increases with advancing age, but it is not fully explained by an increase in the frequency of falling or by a reduction in bone mineral density. It suggests that circumstances of falling may also affect the risk of hip fracture. Aim: The study aims to evaluate fracture characteristics, gender, and treatment among patients with hip fragility fractures.

Methods: This is a descriptive retrospective study. The data were obtained from the patient's medical record in Sanglah General Hospital between April 2016 and April 2017, resulting 162 patients. The variables obtained were sex, age, types of fracture, management, bone osteoporosis, mechanism of injury, and energy of the trauma. Then, these data were analyzed using the SPSS 22.

Results: Of the 162 patients who were reported having problems surrounding the hip, 51.9% were female. Most patients (30.2%) suffered from the intertrochanteric femoral fracture. Most patients (27.2%) were treated with THR. Only 13% had osteoporosis, while 87% did not. Most patients (41.4%) had low energy trauma. 72.8% of the fractures were due to traumatic mode-of-injury.

Conclusion: The female was the one that sustained most hip fracture. The patients mostly did not have osteoporosis and mostly sustained an intertrochanteric fracture. Traumatic mode of injury was the most common cause with low energy trauma as the most prevalent one. The most performed management of hip fractures at Sanglah General Hospital was a total hip replacement. Proper management of hip fractures will curb the number of hip problems experienced by the elderly population.

Keywords: Hip, epidemiology, demographic profile, total hip replacement

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INTRODUCTION

Hip problems may impair mobility and daily function, and is usually associated with high morbidity and mortality. The most common problem is a hip fracture, and falling is generally the leading cause. The incidence rate of hip fracture increases with advancing age, but it is not fully explained by an increase in the frequency of falling or by a reduction in bone mineral density. It suggests that circumstances of falling may also affect the risk of hip fracture. Osteoporosis is also a major health problem, especially in elderly populations. Osteoporosis is associated with fragility fractures which could impair elderly's activities of daily living, and even increase mortality risk. The prevalence of hip problems is expected to increase with the increasing number of elderly. Currently, the number of elderly population in developing countries has grown every year. It is estimated that half of the hip fractures will occur in Asia by 2050. A large practice variation and deviation from available recommendations would necessitate the need for standardized and widely accepted guidelines. No detailed information about medical management and consistency of such management in different hip disorders are available. Our observational study aimed to evaluate fracture characteristics, sex, and treatment among patients with hip fragility fractures.

METHODS

This study is a descriptive retrospective study, using the patient's medical record data obtained from Sanglah General Hospital between April 2016 and April 2017 as many as 162 patients. The variables obtained were sex, age, types of fracture, management, bone osteoporosis, mode of injury, and energy of the trauma. Then these data were analyzed using SPSS 22.

RESULTS

Among 162 patients who reported problems surrounding the hip, 84 patients (51.9%) were female, and 78 patients (48.1%) were male.

Of the 162 patients, 33 patients (20.4%) were younger than 40 years old, 51 patients (31.5%) were in 40-59 age group, 35 patients (21.6%) were in 60-70 age group, and 43 patients (26.5%) were older than 70 years old. The highest number of patients belonged to the 40-59 age group.

Table 1 Characteristic of gender among subjects

Gender	Frequency	%
Male	78	48.1
Female	84	51.9
Total	162	100.0

Table 2 Characteristic of age among subjects

Age (years)	Frequency	%
<40	33	20.4
40-59	51	31.5
60-70	35	21.6
>70	43	26.5
Total	162	100.0

Table 3 Characteristic of hip fracture types among subjects

Types	Frequency	%
Hip joint osteoarthritis	18	11.1
AVN of the femoral head	9	5.6
Implant loosening/infected/failure	13	8.0
Posterior wall acetabular fracture	3	1.9
Posterior column acetabular fracture	1	0.6
Anterior column acetabular fracture	1	0.6
Perithrocanteric femoral fracture	6	3.7
Intertrochanteric femoral fracture	49	30.2
Subtrochanteric femoral fracture	10	6.2
Femoral neck fracture	31	19.1
The base of femoral neck fracture	5	3.1
Posterior hip dislocation	9	5.6
Acetabular fracture	7	4.3
Total	162	100.0

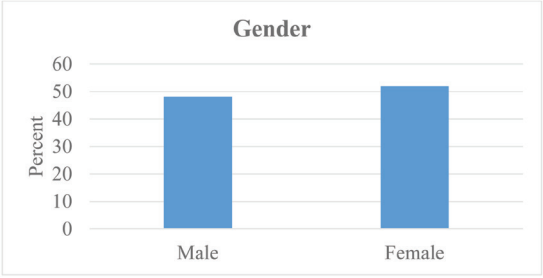

Figure 1 Characteristic of gender among subjects

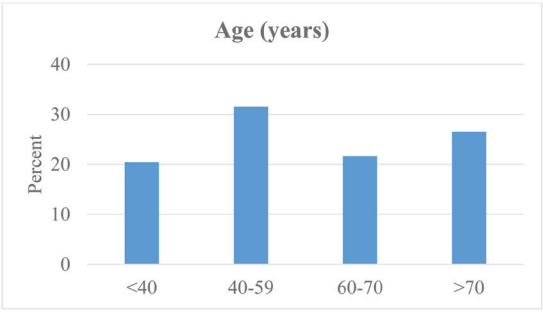

Figure 2 Characteristic of age among subjects

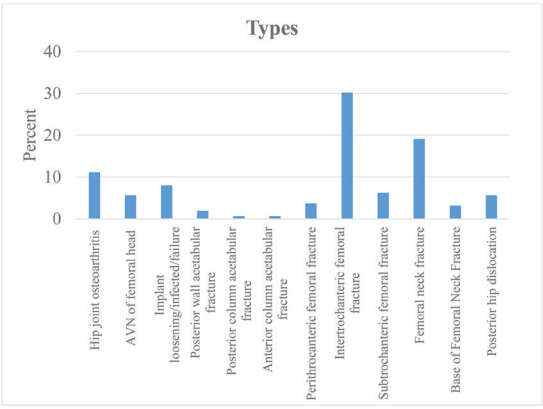

Figure 3 Characteristic of hip fracture types among subjects

There were 18 patients (11.1%) suffered hip joint osteoarthritis, 5.6% AVN of femoral head, 8.0% implant loosening or failure, or infected implant, 1.9% posterior wall acetabular fracture, 0.6% posterior column acetabular fracture, 0.6% anterior column acetabular fracture, 3.7% perithrocanteric femoral fracture, 30.2% intertrochanteric femoral fracture, 6.2% subtrochanteric femoral fracture, 19.1% femoral neck fracture, 3.1% base of femoral neck fracture, 5.6% posterior hip dislocation, and 4.3% for acetabular fracture.

Of the aforementioned cases, 1.2% underwent hemiarthroplasty, 17.9% bipolar hemiarthroplasty, 27.2% THR, 3.7% THR revision, 16.7% ORIF with PS, 1.2% ORIF with interlocking nail, 2.5% ORIF with cannulated screws, 13.0% ORIF with cephalomedullary nailing, 5.6% ORIF with DHS, 1.2% ORF with ABP, 1.9% debridement, 1.2% debridement and implant and spacer removal, 2.5% conservative treatment, 1.2% osteotomy and debridement, 0.6% osteotomy and soft tissue release, 1.2% ORIF screwing, 0.6% implant removal, and 0.6% for IM nailing. In addition, there were only 21 patients (13%) had osteoporosis, while the other 87% did not.

It found that 35 patients had hip fractures due to non-traumatic causes (21.6%), while low energy and high energy traumatic hip injuries occurred in 41.4% patients and 37.0% patients respectively. Of the 162 patients, 27.2% were classified as non-traumatic injuries while 72.8% as the traumatic one.

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Table 4 Characteristic of treatments received among subjects

Treatments	Frequency	%
Hemiarthroplasty	2	1.2
Bipolar hemiarthroplasty	29	17.9
THR	44	27.2
THR Revision	6	3.7
ORIF with PS	27	16.7
ORIF with an interlocking nail	2	1.2
ORIF with cannulated screws	4	2.5
ORIF with cephalomedullary nailing	21	13.0
ORIF with DHS	9	5.6
ORIF with ABP	2	1.2
Debridement	3	1.9
Debridement, implant and spacer removal	2	1.2
Conservative	4	2.5
Osteotomy, debridement	2	1.2
Osteotomy, soft tissue release	1	0.6
ORIF screwing	2	1.2
Implant removal	1	0.6
Total	162	100.0

Table 5 Characteristic of osteoporosis incidence among subjects

	Frequency	%
No osteoporosis	141	87.0
Osteoporosis	21	13.0
Total	162	100.0

Table 6 Characteristic of trauma energy among subjects

Energy of Trauma	Frequency	%
Non-Trauma	35	21.6
Low Energy Trauma	67	41.4
High Energy Trauma	60	37.0
Total	162	100.0

Table 7 Characteristic of mode-of-incident (MOI) among subjects

MOI	Frequency	%
Non-trauma	44	27.2
Trauma	118	72.8
Total	162	100.0

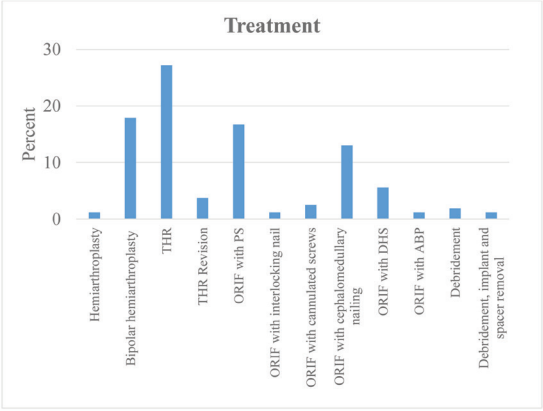

Figure 4 Characteristic of treatments received among subjects

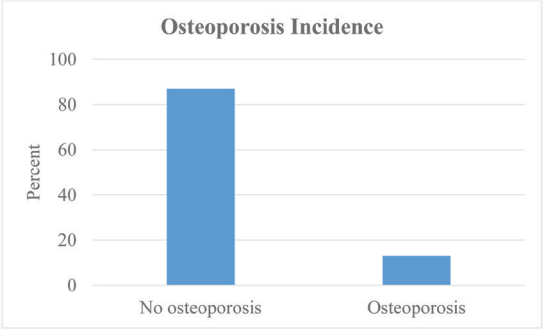

Figure 5 Characteristic of osteoporosis incidence among subjects

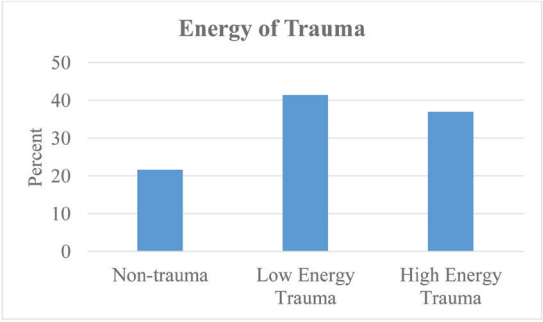

Figure 6 Characteristic of trauma energy among subjects

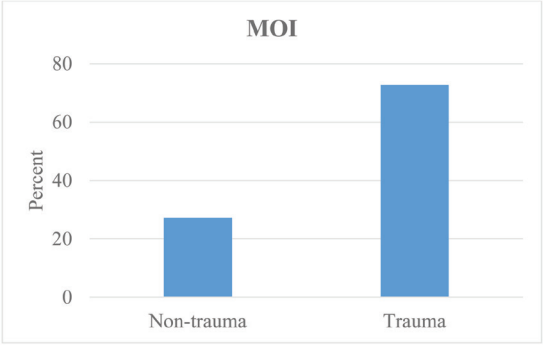

Figure 7 Characteristic of mode-of-incident (MOI) among subjects

DISCUSSION

Age is the leading risk factor for hip fractures in both genders. Thus most hip fractures occur in the elderly. The incidence of hip fractures in females younger than 35 years is 2/100,000 person per year. This number increases drastically in age 85, in which the incidence is 3032/100,000 person per year. Males have less increase than females, where the rates are 4/100,000 person for age <35 years, and 190/100,000 person in age 85 years. 52% of hip fractures occur after 80 and 90% after 50.[1] The main risk factors are the decrease in bone mineral density and the increase in the frequency of falling in the elderly. Not all falling lead to a hip fracture; it only accounts for 1% of all cases. However, 90% of these fractures are related to the falling from standing height or less.

A study by Schwarts et al. (2010) showed considerable differences in hip fracture incidence rates between women and men.[2] This study compared the incidence of hip fractures in five geographic areas during the years of 1990–1992. Those five areas were Beijing (China), Budapest (Hungary), Hong Kong, Porto Alegre (Brazil), and Reykjavik (Iceland). Estimated rates varied widely, with the lowest rates were in Beijing (men: 45.4/100,000, women: 39.6/100,000) and the highest was in Reykjavik (men: 141.3/100,000, women: 274.1/100,000). This result showed that in most areas (except Beijing, China), the rates of hip fracture incidence were higher for women than for men. This result coincides with our study which showed a higher number of women who came to our hospital and reported a hip problem.

Ellaine et al. also published a study which analyzed the influence of ethnicity on the risk of osteoporotic fractures. The rates varied considerably according to the geographic area and race and may vary widely within the same country and populations of a given sex and race.[3]

The geographic regions seem to affect the rates of hip fracture incidence. The incidence of fracture appears higher in areas far from the equator. The rates of hip fracture in Europe vary by as much as 7-fold between countries. In Asia, the highest incidence of hip fractures came from Singapore. A study showed that hip fracture rates were 152/100,000 in men and 402/100,000 in women from the year 1991 to 1998. This was respectively 1.5 and 5 times higher than corresponding rates in the 1960s.[4] The highest increase in hip fracture rates has been seen in Chinese and Malays since 1960. Meanwhile, the rates in the Indian ethnic group appear to have decreased. These results suggest ethnicity plays a role in hip fracture incidence. The factors include demographic profile, physical activity, body weight, cigarette smoking, alcohol consumption, nutrition particularly calcium intake, and frequency of falling in the elderly.

One of the crucial roles in the etiology of hip fracture is genetic factors and environmental factors. Environment factors such as alcohol consumption, smoking, activity levels, obesity, and migration status have not explained these trends, and further research is needed. The other important factors are osteoporosis and disease associated with an increased risk of fallinging. Our data showed that most of the cases that came to our hospital were mostly in the 40-59 age group with non-osteoporotic hip cases. The majority of cases were due to intertrochanteric and femoral neck fracture sustained during a falling or motor vehicle accidents. These results may be explained by the reluctance of elderly populations in our population, who usually make up the bulk of osteoporosis cases, to go to the hospital and seek help. Most of them prefer to stay at home or go to a bonesetter to avoid surgery.

The majority of the hip cases in our paper were being managed with total hip replacement. A study by Birrell et al. (1999) showed that incidence rates of primary THR and THR revision in a population in Denmark have increased from 1996 to 2002. The highest increase was in patients aged 50-59, and the lowest was in patients aged 10-49. This study also showed that all diagnoses, including osteoarthritis, has increased except for rheumatoid arthritis.[5]

Another study using the Hospital Episode System in England showed that the rate of THA was estimated to be 87/100,000 in 1996. The rate of THA was slightly higher in women than men, in which the rate was 109/100,000 and 64/100,000 respectively.[6] They predicted that the rate would increase by 40% by the year 2030. Unlike the above results, they predicted that men would have a higher increase (51%) than women (33%).[6,7] Further studies are needed to determine the effect of race on the incidence of hip fractures in the Indonesian population as well as the long-term effect of THR, especially on the younger population.

CONCLUSION

The majority of hip fractures occurred in women, mostly without osteoporosis, with a high incidence of intertrochanteric fracture. Traumatic mode of injury was the most common cause, with low energy trauma as the most prevalent one. The most performed management of hip fractures at Sanglah General Hospital was Total Hip Replacement. A proper understanding of the cause of hip fractures may lead to future strategies to curb the number of hip fractures experienced by Indonesian population.

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