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Original Research Article

Overview of Outpatient Fracture Cases at Cut Nyak Dhien Hospital for the Period January - June 2023

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Abstract

Introduction:
Fracture is one of the most common problems in the community and requires serious treatment because it will have an impact on all aspects of life. The purpose of this study was to see the description of fracture cases in outpatients at Cut Nyak Dhien Hospital. So that in the future it can be a lesson and also an assessment for the field of orthopedic science in Indonesia, especially West Aceh.

Method:
This research uses a descriptive method. Where data is taken based on data in the SIMRS application at Cut Nyak Dhien Hospital. Data taken in the form of name, place of birth, address, diagnosis, and date of visit. Thenthe sample was separated according to the inclusion and exclusion criteria by the researcher.

Result:
Out of the 5,780 individuals who went to the general surgery clinic at Cut Nyak Dhien Hospital between January and June 2023. 138 fracture instances were reported, or around 23.8 cases per 1,000 clinic visits.

Conclusion:
Men accounted for 81 fractures or 58.6% of all fractures. 58 individuals, or 42% of all fracture cases, were aged 30 to 60 or older when they had a fracture. Among 24 patients (17.4%), femur fractures were the most frequent diagnosis. Four patients (24.5%) in the most often mentioned case suffered metacarpal fractures.

Introduction

Fracture is a break in a bone's structural continuity. It could be as little as a fracture, crumpling, or splintering of the cortex, but more frequently than not, the break is total. The resulting bone pieces could be displaced or not. It is a closed fracture if the overlying skin stays intact; if the skin or one of the bodily cavities is breached, it is an open fracture (also known as a compound fracture), which is susceptible to contamination and infection.[1]

It is acknowledged that peopleunder the age of 65 are more likely to experience fractures, but little is known about the specific fractures that are developing in this patient population. Although the majority of studies have focused on the traditional fragility fractures of the proximal femur, proximal humerus, pelvis, spine, and distal radius, other fractures are likely becoming more frequent.[2]

The fragility fracture occurs every three seconds due to osteoporosis, which causes more than 9 million fractures annually worldwide. First-time osteoporotic fracture sufferers are more vulnerable to subsequent fractures. As people live longer on average around the world, the risk of fracture also grows with age, and more people are anticipated to have fragility fractures.[3] Fragility fractures have a monetary cost of €37 billion in the 27 EU member states (EU27) as of 2010, with

26,300 life years lost and 1.16 million quality-adjusted life years (QALYs) lost each year. 2030 these costs are anticipated to significantly increase due to changing demography.[4]

In females, fractures of the spine (clinical vertebral), hip (proximal femoral), and distal forearm showed a pattern of steady incidence into early adulthood. Fractures of the forearm and spine, on the other hand, began to grow exponentially after menopause. The pelvis, humerus, femur, and patella showed a similar pattern. Childhood and adolescence were the years with the highest incidence of distal forearm, humerus, other forearm,and ankle fractures. Age-related alterations for fractures of the spine, hip, ribs, pelvis, and humerus in males resembled the female pattern.[5]

Male incidence was typically lower at these locales, especially among the elderly. For the distal forearm and humerus, a peak corresponding to childhood and adolescence was observed. In contrast to females, there were no further age-related increases in ankle fractures during infancy and adolescence, but this rise persisted into early adulthood. For fractures of the face, clavicle, carpal bones, hand, fingers, foot, and toe, an adolescent- young adult peak incidence was noted, with no further age-related increases. The evidence for tracking temporal changes in fracture burden is provided by examining fracture patterns.[5]

Patients with spine fractures are frequently seen by emergency room doctors, orthopedic surgeons, and neurosurgeons. According to reports, there are between 24 and 90 spine fractures for every 100,000 people. Modern treatment methods may be used, however prolonged rehabilitation, extended time away from work, or permanent disability may still occur. Due to the frequent negative effects on daily activities that spine fractures have, there is a high main and indirect socioeconomic cost burden.[6]

In a private secondary care hospital in Jeddah, 32,792 patients visited the orthopedic outpatient department (OPD) from April 2013 to March 2017. The number of visits was dominated bymales compared to females. About 2567 (11%) patients visited the OPD with fracture complaints. This indicates that fractures were among the top 3 most common cases experienced by patients during orthopedic clinic visits.[7]

Epidemiology of orthopedic trauma is an interdisciplinary field that combines epidemiologyand orthopedic trauma. Its purpose is to study the incidence, prevalence, and primary components of orthopedic trauma as well as to produce scientific data that can be used as a basis for its prevention and management. Orthopedic trauma epidemiology research can precisely define the distribution of gender, age, location, time, categorization, and causeof trauma in order to produce scientific data that can be helpful for the prevention and management of trauma in the population.[8]

This study is anticipated to provide a source of scientific information on the prevalence and evolution of trauma/fracture management in Indonesia, particularly in West Aceh. There are no orthopedic experts anywhere along Aceh's west-to-south coast, which runs across 7 districts and cities. For the population to receive orthopedic specialist treatments that can be equally accessible inAceh in the future.

Method

Starting from January - June 2023, this descriptive study will observe fracture cases in outpatients at the surgical specialist clinic of Cut Nyak Dhien Hospital (CND). All patients with fractures who had received a diagnosis from generalsurgeons made up the study's population. The general surgery clinic at RSUD CND's computerized databases and medical records were searched to find the data for this study. The data were sorted before being further examined according to age, gender, and the kind of incident that took place.

The following criteria were used to choose the study sample: (1) patients with a fracture diagnosis who visited the general surgery department at Cut Nyak Dhien Hospital; and (2) patients with a West Aceh address. Patients with diagnoses other than fracture and those whose addresses were outside of West Aceh were excluded.

Results

A total of 5,780 people registered for treatment at Cut Nyak Dien Hospital's general surgery clinic between January and June 2023. A total of 138 fractures, or 23.8 cases per 1,000 clinic visits, were diagnosed during this period. For this investigation, 138 people with fracture problems met the inclusion criteria.

Discussion

Fracture is a term that means partial or complete loss of bone continuity. Fractures can occur due to direct or indirect trauma.[9] Research conducted by Hove in 2014 stated his research that traffic accidents are more common in males than females. Men also have a large proportion of high-energy trauma including falls from height and sports injuries. Whereas in the elderly it is often caused by low-energy trauma, this happens because in the elderly bone mineral density (BMD) joint problems are due to degenerative factors.[10] Research in 2021 stated that the number of new fractures was experienced by 102 million people in men and 76 million people in women.[11] A study conducted in 2016 at Meuraxa Hospital and Zainoel Abidin Hospital in Banda Aceh stated that most traffic

Table 1. Cases by Gender

Gender	*N (%)*
Male	81 (58,6)
Female	57 (41,4)
Total	**138 (100)**

Table 2. Cases by Age

Age	N (%)
0-2 years	2 (1,7)
2 years 1 months - 17 years	28 (20,2)
17 years 1 months - 30 years	32 (23,1)
30 years 1 months - 60 years	58 (42)
>60 years	18 (13)
Total	**138 (100)**

Table 3. Cases by Diagnosis

Diagnosis	N (%); M=Male, F=Female
Femur	24 (17,4); 16M, 8F
Tibial	23 (16,7); 13M, 10F
Humerus	17 (12,3); 7M, 10 F
Radial	15 (10,8); 10M, 5F
Clavicle	14 (10,1); 5M, 9F
Ulna	9 (6,5); 6M, 3F
Metacarpal	7 (5,0); 5M, 2F
Lumbar Spine	5 (3,7); 4M, 1F
Schapoid	5 (3,7); 3M, 2F
Pelvis	4 (2,9); 3M, 1F
Rib	3 (2,1); 2M, 1F
Fibula	3 (2,1); 2M, 1F
Patella	2 (1,5); F
Metatarsal	2 (1,5); M
Phalanx	2 (1,5); M
Mandible	2 (1,5); 1M, 1F
Maxila	1 (0,7); F
Total	**138 (100)**

Table 4. Cases Referred to Orthopedic Specialist at The Provincial Hospital

Diagnosis	N (%)
Metacarpal	4 (24,5)
Tibia	3 (18,5)
Metatarsal	2 (12,5)
Humerus	2 (12,5)
Pelvis	1 (6,4)
Femur	1 (6,4)
Lumbar spine	1 (6,4)
Clavicle	1 (6,4)
Ulna	1 (6,4)
Total	**16 (100)**

accident cases were experienced by men compared to women. The incidence rate was 135 men and 39 women.[12] Even a 2017 study at Soetoemo Surabaya Hospital noted that automobile accidents frequently result in femur fractures.[13] This is consistent with the findings of this study, which found that of the 138 fracture cases shown inTable 1, men encountered 81 fracture cases,, compared to women's 57 cases.

The majority of fracture incidences, according to research done in Sweden in 2020, occur in people between the ages of 16 and 105.[14] The majority of instances in Table 2 of this study are found to be between the ages of 30 and 60. Thisis hardly at all different.

Femur fracture diagnosis was made in 6410 individuals under the age of 17 in research conducted in 2013. In Finland and Sweden, the overall incidence per 100,000 femur fractures was 13.3 and 11.0, respectively. In all age groups older than one year, a male preponderance was found.[15] While in this study there are similarities, where femur fractures were found in 16 men and 8 women. Table 3 clearly shows that femur fractures were more common among males than females.

A 2012 study stated that flexor tendon injuries are common, yet treatment protocols are still widely debated. Advances in suturing techniques and a better understanding of tendon morphology and biomechanics have led to improved outcomes. Thus, problems in the metacarpal region, especially zone 2, require at least an orthopedic surgeon.[16] So in Table 4 we can see that fractures in the metacarpal region are the highest cases referred to orthopedic specialists.

Conclusion

Results showed that Men experience fractures more frequently than women. The mobility of men, who are more active than women, may have an impact on this. In a similar vein, it is evident that age groups between 30 and 60 years are those that have fracture instances most frequently. In contrast, the femur is the bone that fractures more frequently based on the current diagnosis.

The results of the study attached in Table 4, can be seen that as many as 16 (11.5%) patients out of a total of 138 patients who experienced fractures had to be referred to hospitals in the province. This is due to limited equipment and orthopedic specialists who are better able to handle these cases.

The author previously stated that no orthopedic doctors are available in the western and southern regions of Aceh. This causes patients to be referred to the hospital in the provincial capital by traveling 4 hours. Even if the patient comes from the southern region, it can take between 8 - 10 hours to travel. For this reason, West Aceh is currently building a regional

hospital for Aceh's western and southern regions.[17] We hope that in the future services for patients in the West and South of Aceh can be improved. In this case, the provision of orthopedic specialists in the future will be one of the prioritized specialists. Researchers also hope that the Indonesian government, especially Aceh, can make better policies in the future.

References

1. Blom A, Warwick D, Whitehouse M, editors.Apley & Solomon's system of orthopedics and trauma. 10th ed. CRC Press; 2017.
2. Court-Brown CM, Caesar B. Fracture in older adults. A view of the future? Injury. 2006 Aug;37(8):691-7.
3. Johnell O, Kanis JA (2006) An estimate of the worldwide prevalence and disability associated with osteoporotic fractures. Osteoporos Int 17:1726–1733.
4. Hernlund E, Svedbom A, Ivergård M, Compston J, Cooper C, Stenmark J, Mc Closkey EV, Jönsson B, Kanis JA (2013) Osteoporosis in the European Union: medical management, epidemiology and economic burden. Arch Osteoporos 8:136.
5. Pasco, J.A., Lane, S.E., Brennan-Olsen, S.L. *et al.* The Epidemiology of Incident Fracture from Cradle to Senescence. *CalcifTissue Int* 97, 568–576 (2015).
6. Bigdon, S.F., Saldarriaga, Y., Oswald, K.A.C. *et al.* Epidemiologic analysis of 8000 acute vertebral fractures: evolution of treatment and complications at 10-year follow-up. *J Orthop Surg Res* 17, 270 (2022).
7. Azfar M S. Azim R S. Baig M. Frequency of orthopedic problems among patient sattending an orthopedic outpatient department: a retrospective analysis of 23 495 cases. Annals of Saudi medicine 39(3): 172-177 (2019).
8. Ballane G, Cauley J.A, Luckey MM, El-Hajj Fuleihan G. Worldwide prevalence and incidence of osteoporotic vertebral fractures. Osteoporos Int. 2017;28(5):1531–42.
9. Z. Noor, Buku Ajar Gangguan Muskuloskeletal, Jakarta: Salemba Medika, 2017.
10. L. M. Hove, P. Hølmer and T. Lindau, Distal Radius Fractures: Current concept, Denmark: Springer-Verlag Berlin Heidelberg, 2014.
11. Wu A M, et al. Global, regional, and national burden of bone fractures in 204 countries and territories, 1990–2019: a systematic analysis from the Global Burden of Disease Study 2019. The Lancet. 2021.
12. Walidatul, P., & Halimuddin. (2016). Pasien Fraktur Dan Hari rawatan Kasus Kecelakaan Lalu Lintas Banda Aceh. Jurnal Keperawatan.
13. Noorisa R, Aziz A, Aprilliwati D, Bayu sentono S. The characteristic of patients with a femoral fracture in the department of Orthopedic and Traumatology RSUD Dr. Soetomo Surabaya 2013 – 2016. Joints. 2017.
14. Berge C, Wennergren D, Moller M, Brisby Helena. Fracture incidence in adults in relation to age and gender: A study of 27,169 fractures in the Swedish Fracture Register in a well-defined catchment area. Pone. 2020.
15. Enninghorst, et al. Population-based epidemiology of femur shaft fractures. Journal of Trauma and Acute Care Surgery 74(6):p 1516-1520, June 2013.
16. Kotwal PP, Ansari MT. Zone 2 flexor tendon injuries: Venturing into the no man's land. Indian J Orthop. 2012 Nov-Dec; 46(6): 608– 615.
17. https://aceh.tribunnews.com/2022/04/02/pembangunan-rumah-sakit-regional-2022-diminta-fokus-bangun-ruang-poliklinik.