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Characteristics of Neglected Fracture in dr. H. Andi Abdurrahman Noor General Hospital, Tanah Bumbu

Wizard Eka Putra Azaka[1], Andi Karsapin Tarsan[2]

[1]General Practitioner, Simpang Empat Public Health Center, Tanah Bumbu, Indonesia
[2]Department of Orthopaedics and Traumatology, dr. H. Andi Abdurrahman Noor General Hospital, Tanah Bumbu, Indonesia
Correspondence Author: wizard.azaka5@gmail.com

Abstract:

Neglected fracture is defined as a fracture that is left untreated or improperly treated, leading to delayed treatment, worsening conditions, and even disability. This study aimed to identify the characteristics of neglected fracture patients admitted to dr. H. Andi Abdurrahman Noor General Hospital, Tanah Bumbu, South Kalimantan. The method used was an observational descriptive study using cross-sectional approach involving 23 medical records of patients diagnosed with neglected fracture. Out of 23 patients, 22 (95.65%) were males, 8 (34.78%) were 11-20 years old, 13 (56.52%) had fractured 1-3 months before admitted to the hospital, 22 (95.65%) had closed fractures, 6 (26.08%) had femoral fractures, 12 (52.17%) cases were due to non-traffic accident, 7 (30.44%) had malunion and joint stiffness as the most common complications and 17 (73.91%) were treated with open reduction and internal fixation (ORIF). The conclusion of this study is that neglected fractures patients were mainly males, predominantly aged 11-20 years old, took 1-3 months to hospital admission, predominantly closed fractures, with femurs being the most fracture site, caused by non-traffic accidents and most of the patients had complications treated with ORIF.

Keywords: Malunion; Neglected Fracture; Traditional Bonesetter

Introduction

Neglected fracture is a condition of a break in bone continuity that is left untreated or improperly treated, leading to delayed treatment, worsening conditions, and even disability.[1,2] Based on the 2018 RISKESDAS, fracture cases accounted for as much as 5.5% of injury cases in Indonesia.[3] Many developing countries, including Indonesia, still choose traditional fracture treatment to treat fractures before going to the hospital.[4,5] Therefore, it is common for patients to come to health care service already in a state of complications, most commonly in the form of malunion or nonunion.[6]

Neglected fracture cases are more common in men, with most of them in productive age and the average duration of neglected fracture from the onset of the incident to seek treatment in health care service is 12.7 weeks.[7,8] Causes of neglected fractures can be due to traffic accidents or falls, work accidents, or sports injuries.[7] This study was to describe the characteristics of neglected fracture patients admitted to dr. H. Andi Abdurrahman Noor General Hospital, Tanah Bumbu.

Research Method

This was an observational descriptive study using the cross-sectional approach with data collected from medical records of the orthopedic outpatient clinic and the inpatient wards of dr. H. Andi Abdurrahman Noor General Hospital from September 2022 to February 2023. All patients on the first visit to H. Andi Abdurrahman Noor Hospital diagnosed as neglected fracture by orthopedic specialist were included in this study. The data collected were age, gender, and onset time of the fracture until admission to dr. H. Andi Abdurrahman Noor General Hospital, mechanism of injury, fracture site, complications, and treatment. The collected data were analyzed using tabulation and described in terms of frequency and percentage.

Results

From September 2022 to February 2023, the number of neglected fracture patients was found 23 patients which consisted of 22 males (95.7%) and 1 female (4.3%). The age range of neglected fracture patients in this study was 4-53 years old, with most cases being 11-20 years old (34.78%). The neglected fracture onset ranged from 1 week to 8 years, with 13 (56.52%) patients being admitted to the hospital within 1-3 months after the incident. The most common mechanism of injuries was due to non-traffic accidents in 12 patients (52.17%). Of the total 22 (95.7%) patients had closed fractures, with 6 (26.08%) patients had femoral fractures. Several complications were observed; with most common complications found were malunion and joint stiffness in 7 (30.44%) patients. In total, ORIF was performed in 17 patients (73.91%) and 6 patients (26.09%) underwent conservative treatment (Table 1).

Discussion

There were 23 neglected fracture patients admitted to dr. H. Andi Abdurrahman Noor General Hospital during September 2022 to February 2023. This study discovered that most of the patients were predominantly male (95.65%). This is in line with the previous study by Wahyudiputra (2015) 76.92%; Putra FIE (2020) 56.2%, and Warman PL (2018) 73.26%, that neglected fracture patients were predominantly male.[6–8] Men and productive age are associated with higher mobilization, thereby increasing the risk of fractures especially due to traffic accidents and their involvement in injury-prone activities.[8–10]

In this study, most of the patients had neglected fractures at 11-20 years old. This is different from the previous study, in which the most common age affected in 41-50 years old by Putra FIE et al., and 21-30 years in the study by Warman PL et al.[6,7] It is explained by the young adult group that engages in daily high energy activities to work for a living or for recreation, therefore more susceptible to limb injuries. But overall, the majority of fractured patients are still in productive age.[11]

Table 1. Characteristics of Patients

Characteristics	Frequency	Percentage
Gender		
Male	22	95.65%
Female	1	4.35%
Age		
<10 years	3	13.04%
11-20 years	8	34.78%
21-30 years	6	26.09%
31-40 years	3	13.04%
41-50 years	2	8.70%
51-60 years	1	4.35%
>60 years	0	0%
Admission Time		
<1 week	0	0%
1 week - <1 month	3	13.04%
1-3 months	13	56.52%
4-6 months	3	13.04%
7-9 months	0	0%
10-12 months	2	8.70%
>12 months	2	8.70%
Type of fracture		
Close	22	95.65%
Open	1	4.35%
Site of fracture		
Upper extremities		
Humerus	3	13.04%
Forearms	2	8.70%
Hand	3	13.04%
Lower extremities		
Femur	6	26.08%
Cruris	5	21.74%
Foot	2	8.70%
Shoulders		
Clavicle	2	8.70%
Scapula	0	0%
Mechanism of Injury		
Non-traffic accidents	12	52.17%
Traffic accidents	11	47.83%
Complications		
Malunion	7	30.44%
Nonunion	4	17.39%
Joint stiffness	7	30.44%
Delayed union	5	21.73%
Treatment		
ORIF	17	73.91%
Conservative	6	26.09%

Time required for patients from the fracture onset to hospital admission ranged from 1 week to 8 years, with the most time range around 1-3 months after fracture onset (56.52%). This is consistent with the previous study by Warman PL, et al (29.07%) and Putra FIE (37.5%) which also stated that the highest percentage was in the range of 1-3 months.[6,7]

This study discovered that the most common mechanism of injury causing neglected fractures were due to non-traffic accident (falls, workplace accidents, sports

injuries, and blunt force impact) in 12 patients (52%) and 11 patients (48%) due to traffic accidents. This is in line with the previous study by Putra et al., with 81.2% of neglected fracture patients caused by non-traffic accidents.[6] Researchers found the same thing when conducting a review of medical records, with most sports accidents at the age of 11-20 years occurring in young boys who are doing sports activities such as basketball, volleyball, and football.

Closed fractures were the most common type of fracture found in this study with 22 cases (95.65%). Similar studies were conducted in Hasan Sadikin General Hospital with a larger sample of 86 patients, 83 (96.51%) had closed fractures.[7] This is because most of TBS refused to treat open fractures, and preferred to refer them to the hospital.[4] One patient in this study had an open metatarsal fracture and also stated that before going to the hospital he had visited TBS and came to our hospital in a state of complication.

The most common neglected fracture sites in this study were femoral fractures (26.08%). Similar results have been shown in previous studies by Warman et al with 37.61%, Wahyudiputra AG et al 38.46%, Putra DHS with 36%, and a study in Nigeria with 20.4% also stated most patients had neglected femoral fractures. [6,8–10] This is likely due to the significant morbidity and disabling effects of femur fractures, thus encouraging patients to seek treatment.[11]

Early complications of fracture that can occur are joint stiffness, infection, compartment syndrome, nerve injury, and others. In addition, late complications can occur if the fractured bone is not handled properly, which include malunion, delayed union, non-union, avascular necrosis, impaired bone growth, muscle contractures, impaired joint stability, and osteoarthritis.[1] In this study, the most common complications found in neglected fracture patients were malunion (30.44%) and joint stiffness (30.44%). This is consistent with the studies of Warman (54.69%), Wahyudiputra et al (46.16%) and Kuubiere et al (31.3%) that neglected fracture patients experienced malunion as the most complications. [6,8,12] All of the patients were not treated properly and had different ways of handling fractured bone by giving herbs, massage, and wrapping which led to failure in achieving anatomical reduction.[12]

A total of 17 patients (73.91%) in this study underwent ORIF, for most cases of neglected fractures of long bones, osteoperiosteal decortication was performed. This technique does not require expensive costs but has been able to provide good results in the last few decades even though it was performed with limited hospital facilities.[13] For cases that were managed conservatively in 6 patients (26.09%), were chosen because one patient refused surgery, one case of metacarpal fracture and one case of multiple metatarsal fractures, one case of supracondylar humerus fracture, and two cases of distal radius fracture performed casts because they still fulfilled non-operative indications.

Conclusions

Neglected fractures patients were mainly males, predominantly aged 11-20 years old, took 1-3 months to hospital admission, predominantly closed fractures, with femurs being the most fracture site, caused by non-traffic accidents and most of the patients had complications treated with ORIF.

This study still has some limitations, such as a short sampling time period, and therefore needs to be extended to obtain a larger number of samples and better characteristics of neglected fracture patients. Neglected fracture cases can be reduced through education by doctors and collaboration with the government to increase public awareness of the importance of seeking medical treatment after traffic accidents, falls, work accidents, or sports-related injuries. In addition, it is also necessary to improve professional health services especially orthopedic surgeons to handle neglected

fracture cases if not available at the nearest hospital.

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