Characteristics of Upper Extremity Trauma Patients from Division of Orthopedics and Traumatology in Department of Surgery Dr. Mohammad Hoesin General Hospital Since Januari 1st - December 31st 2019

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Abstract

Background: Upper extremity trauma is one of the most frequent of trauma that leads to emergency department visitation in every health care facilities. A wide range of manifestations could differently be present from one area to another. Thus, the statistical prevalence number of upper extremity trauma is very important for designing and optimizing the health care service for the purpose of preventive and curative. This study aims to understand the charachteristics of patient with upper extremity trauma that admitted at Dr. Mohammad Hoesin General Hospital Palembang emergency department in the period of January to December 2019.

Methods: This research was an observational descriptive study. Using secondary data from the medical records of Mohammad Hoesin Hospital, Palembang. Performed in the from January 2019 to December 2019. Samples were all upper extremity trauma patients who were admitted at Dr. Mohammad Hoesin General Hospital Palembang emergency department in the period of study.

Results: There were 54 subjects participated who met the study's criterias. Most of them were male (76%) with the average of age around 34 years old. It is also dominated with the group of age 25-44 years old (39%), 80% of among all patients have closed and hard tissue trauma. Regio humerus is the most frequent area impacted (16 patients). Most of the patients have worked as private employees (13

patients) with education background till senior high school (38 patients). The etiology of majority trauma is traffic accident (29 patients) that lived outside Palembang area (16 patients).

Conclusion: Majority of the upper extremity trauma cases of this study have characteristics as male in productive group of age and the cause of trauma is traffic accident.

Key words: upper extremity trauma, hard tissue, humerus, characteristics

1. Introduction

Upper extremity trauma is one of the most frequent of trauma that leads to emergency department visitation in every health care facilities. A wide range of manifestations could differently be present from one area to another. Thus, the statistical prevalence number of upper extremity trauma is very important for designing and optimizing the health care service for the purpose of preventive and curative. [1-3]

According to Badan Pusat Statistika in South Sumatra region, Palembang is the city with highest increament of total population, around 120.000 people from 2010-2015.[4,5] This surplus demografic indirectly increase both the risk of traffic accident and occupational accident particularly that caused the hand damaged.[6,7]

A study in United States in 2009 towards 87 million of people found 590.194 farcture cases of upper extremity trauma. Thus, it can be concluded that 67.6 fractur cases happened per 10.000 population.[8] In terms of upper extremity trauma in children, the case is increased due to the increasing of sport activities while in elderly population, only elderly that physically active may suffered from this incident. The majority manifestations of upper extremity trauma among those groups are distal radius and ulna fractures. The total cases were 16.2 fracture per 10.000 cases. In addition, the cases of metacarpal fracture were 13.6 cases per 100.000 people and children with age around 10-19 years have the highest tendency to suffer from this incident.[9]

Another study towards upper extremity trauma with the specification for maxillofacial trauma by Bram Permadi Tanto (2020) found that certain sociodemographic factors may have higher prevalence that others such as male patients, teenagers (12-21 years of age), and incident of traafic accident. [10]

According to the studies mentioned above, it is showed that there is a correlation between sociodemographic factors and prevalence of upper extremity trauma. Thus, this study will dig dipper about the upper extremity trauma cases in South Sumatra especially for patients that admitted at RSUP Dr. Mohammad Hoesin Palembang emergency department from January 2019 to December 2019. It will also describe all the regions such as shoulders, upper & lower arms, hand, palms, wrist, and each mechanical trauma of each representative samples from the population of Palembang city and its surroundings.

2. Method

This research was an observational descriptive study. Using secondary data from the medical records of Mohammad Hoesin Hospital, Palembang. Performed in the from January 2019 to December 2019. Samples were all upper extremity trauma patients who were admitted at RSUP Dr. Mohammad Hoesin Palembang emergency department in the period of study. Patient without complete medical record will be excluded. The researched variables are age, gender, etiology, regio, type of wound, level of education, job title, and address. After obtaining approval from the Research Ethics Committee, data recording was carried out in the medical record room, analyzed univariately with SPSS software, and presented in charts and graphs.

3. Results

There were 54 subjects participated who met the study's criterias. Age distribution can be inferred to graph 1. The youngest age of patient with upper extremity trauma who received treatment was 3 years old, whereas the oldest age was 86 years old. The average age of patients with was 34 years old.
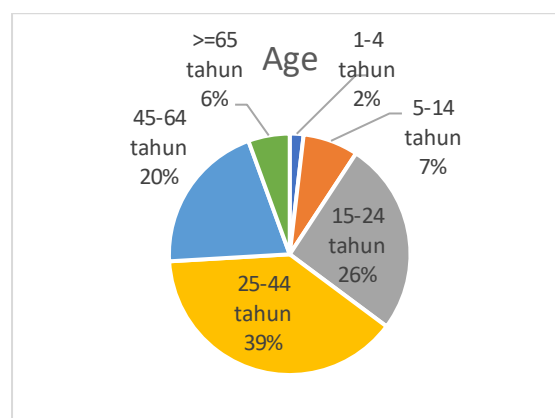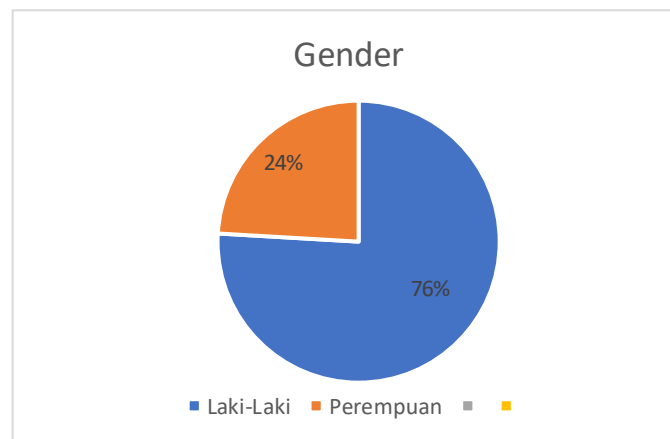

Graph 1. Age distribution of research subjects

According to the type of trauma, research subjects can be devided into soft tissue, hard tissue, dan mixed trauma. The average of patients who suffered from soft tissue trauma was around 31 years old while for mixed trauma was around 37 years old. It showed that the increasing of age may increase the risk of mixed trauma. 41 samples of this research were male
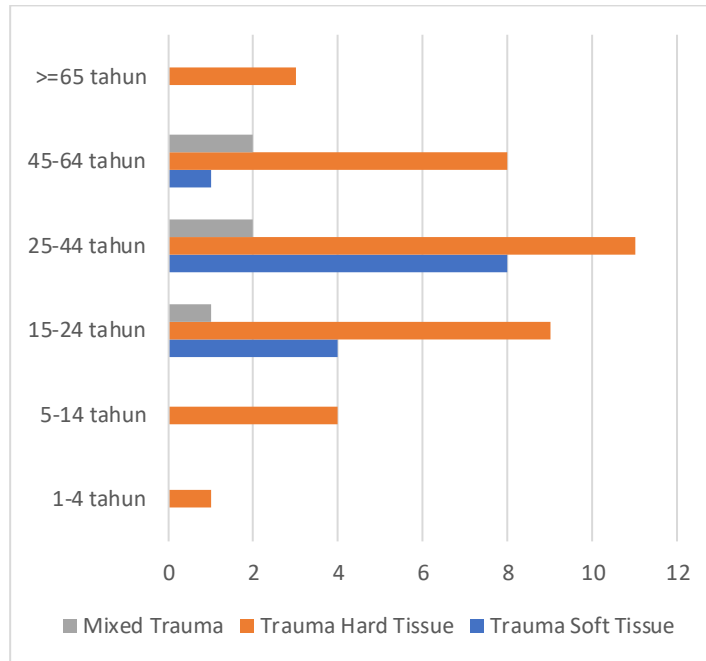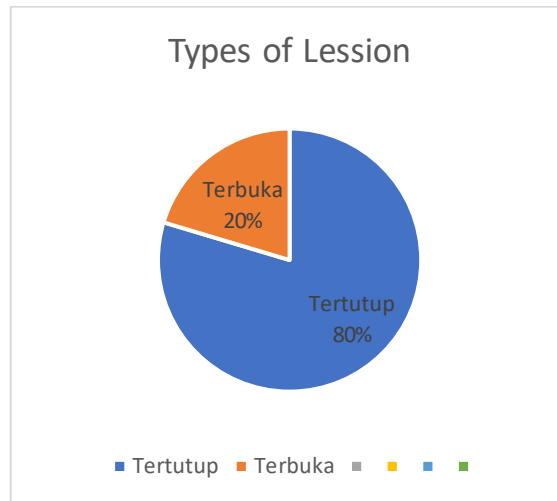

Graph 2. Age distribution of research subjects according to the type of trauma
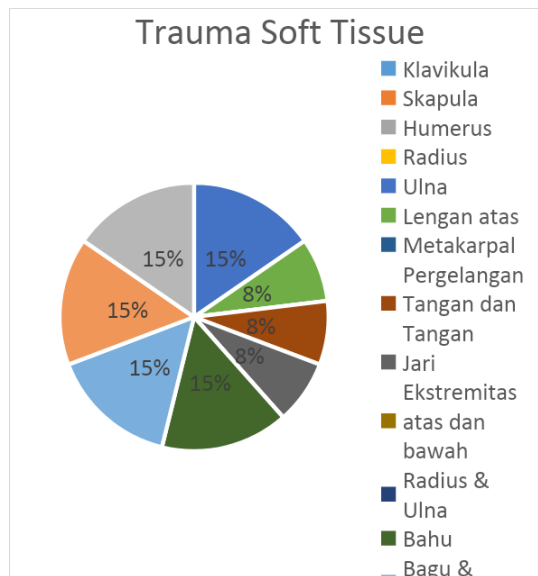

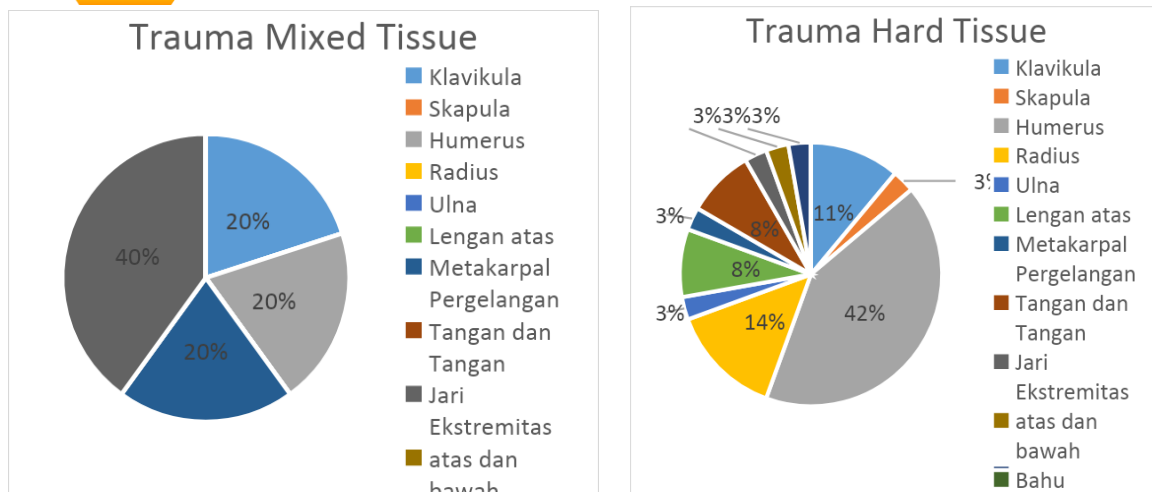**Graph 3.** Gender distribution of research subjects

According to the type of lessions, majority of the samples (almost 80%) have closed lesion unless group of patients with mixed trauma whose lessions were opened ones (20.4%).

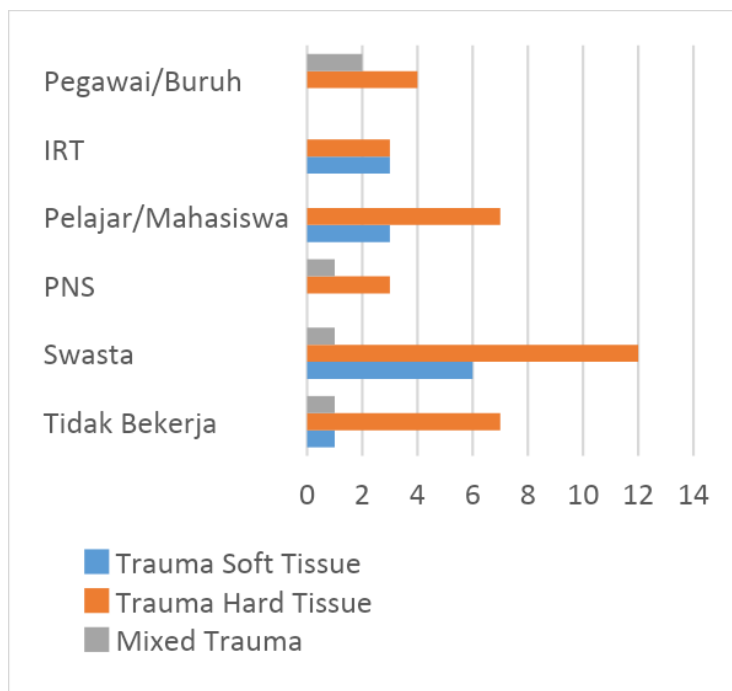**Graph 4.** Type of lession distribution of research subjects

There are 3 most frequent regios that usually suffered from upper extremity trauma namely humerus region (16 patients), clavicula and radius (5 patients). While scapula region was the least impacted one (1 patient) as well as radius and ulna combination (1 patient).
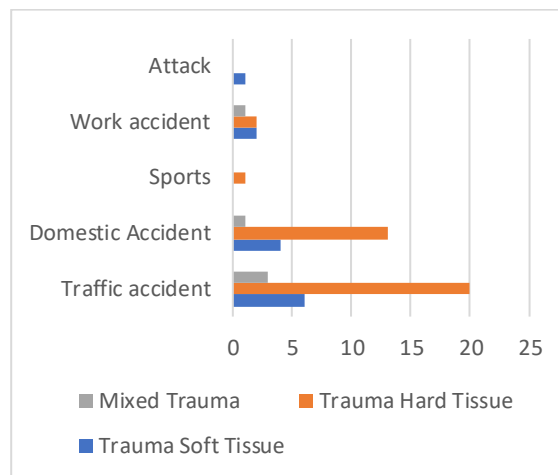
Graph 5. Region distribution of research subjects according to types of trauma

According to the job title, majority of the patients that suffered from soft and hard tissue were private employees. On the other hand, patients whose job were labours majority dominated by mixed trauma.


Graph 6. Work profession distribution of research subjects

According to the etiology of trauma, majority of the patients from all types of upper extremity trauma were due to traffic accident.

Graph 7. Etiology of trauma distribution of research subjects

In this study, most of the participants came from outside Palembang areas. Even more, inside Palembang area, most of the patients came from Ilir Timur II districts (9 patients), followed by Kemuning and Kalidoni (each for 4 patients). While the least subject was one came from each of these areas namely Sukarami, Sako, and ilir timur I district.
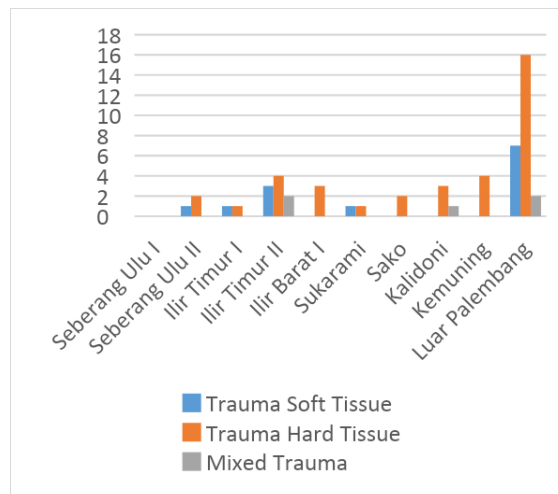
Graph 8. Address distribution of research subjects

According to the educational background, most of the participants were senior high school graduates (38 patients) and only one patient with elementary school graduate.
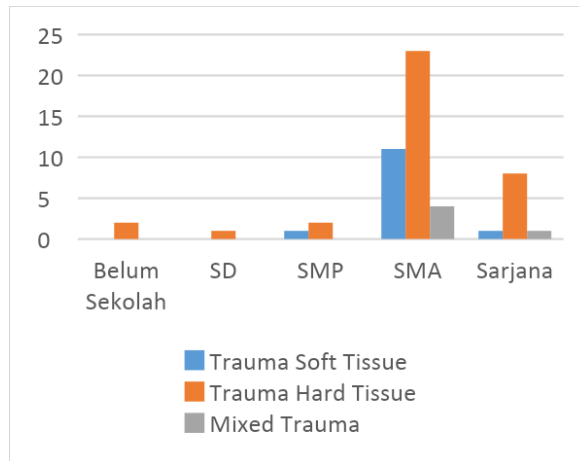
Graph 9. Educational background of research subjects

4. Discussion

Majority of the participants were male with the group of age around 25-44 years old. This finding was similar with the study did by Maryam A, Kamran A, Ebrahum A, Shahrokh M and Azadeh M (2017) that showed the average age of patient with shoulder fracture was 39.93 years old, 38.14 years old for humerus fracture, 39.22 years old for elbow, 21.87 years old for upper arm, 36.88 years old for wrist, and 29.73 years old for hand.[9-11]

This study also supports the previous study by Bram Permadi Tanto (2020) that found certain sociodemographic factors may have higher prevalence that others such as male patients, teenagers (12-21 years of age), and incident of traffic accident in terms of maxillofacial trauma. [10]

There are 3 most frequent regios that usually suffered from upper extremity trauma namely humerus region (16 patients), clavicula and radius (5 patients). While scapula region was the least impacted one (1 patient) as well as radius and ulna combination (1 patient). This finding was contrary with the previous one resulted by Maryam A, Kamran A, Ebrahum A, Shahrokh M and Azadeh M (2017). They found that the highest incidence rates for upper extremity trauma was hand region (358 patients), wrist (333 patients), and upper arm (233 patients). Maryam A and friends took 6 months of researched of total fracture in Shafa Yahyaian hospital in Iran.[10,11]

According to the etiology of trauma, majority of the patients from all types of upper extremity trauma were due to traffic accident. This finding was supported by data from BPS South Sumatra

Province in 2018 by the increase numbers of vehicles in Palembang around 5.7% between 2016-2018 from 667.786 to 706.025 vehicles. The increasing of vehicles will increase the risk of traffic accidents.[12,13]

According to the job title, majority of the patients that suffered from soft and hard tissue were private employees. On the other hand, patients whose job were labours majority dominated by mixed trauma. People who worked in factories with high technology industry may have higher chance of occupational injuries compared to them who used soft skills or intellectuality types of job. It also means that the higher level of education then smaller cases of upper extremity trauma due to occupational related injuries happened.

Finally, RSUP Dr. Mohammad Hoesin Palembang was a type "A" hospital that accepts the referred patients from others outside South Sumatra such as Jambi, Bangka Belitung, Bengkulu and Lampung. Thus, the majority of the participants in this study were dominated of patients outside Palembang city.

5. Conclusion

Majority of the upper extremity trauma cases of this study have characteristics as male, between 25-44 years old, closed lessions, hard tissue trauma, humerus regio, working as private employees, senior high school graduates, and live outside Palembang area.

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