CHARACTERISTICS OF FACIAL BONE FRACTURES IN OTORHINOLARYNGOLOGY HEAD AND NECK SURGERY DEPARTMENT - DR. HASAN SADIKIN GENERAL HOSPITAL BANDUNG PERIOD JANUARY 2016 – JANUARY 2021

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Abstract

Introduction. Facial bone fracture is one of the causes of patient visits to the emergency department. The epidemiology of facial bone fractures differs not only between populations but also has continued to change over the last few decades. Data collection in term length regarding the epidemiology of facial bone fractures becomes important because it provides the necessary information for the development and evaluation of actions prevention that might help reduce the incidence of facial trauma.

Objective. This study aims to describe the characteristic of facial bone fractures in otorhinolaryngology head and neck surgery department.

Method. A descriptive retrospective study was conducted in Hasan Sadikin General Hospital using medical record of patients with facial bone fractures in otorhinolaryngology head and neck surgery department.

Result. It was found that there were more research subjects found in male patients, namely a number of 20 people (66.6%) were compared with female patients, namely 10 people (33.33%). The highest age group was in the 11-20 year age group with 9 people (30%), followed in the 21-30 year age group by 6 people (20%), age group 41-50 years as many as 5 people (16.6%), age group 31-40 years, the age group 51-60 years, and the age group ≥60 years have the same number, namely 3 people (10%), followed by the age group 2-10 years with a total of 1 person (3.3%). Most etiology is a motor accident with 21 (70%) cases, followed by motorized collisions with 2 (6.7%) cases, violence with an amount of 1 (10%) case, exercising with a number of 1 (3.3%) case, and violation by the amount of 3 (10%) cases. The diagnosis with the highest number of facial fracture patients is maxillary fracture with 15 (50%) cases, followed by orbital fractures with 8 (26.6%) cases, panfacial fractures 8 (26.6%) cases, nasal fractures 6 (20%) cases, mandibular fractures with a total of 5 (16.6%) cases, followed by zygoma fractures with a total of 3 (10%) cases, fractures dentoalveolar fractures with 3 (10%) cases, frontal fractures with 2 (6.6%) cases, and blow out with the amount of 2 (6.6%) cases.

Conclusion. It can be concluded that the largest age group was found to be the ages of 11-20 year, male is the most patients who experience facial bones fractures, the most common etiology for facial bone fracture patients is an vehicle accidents, the most common diagnosis for patients with facial bone fractures is the maxillary fracture, and most cases are treated by surgical management. mpani perforasi

Keywords: Facial bones, Fractures

INTRODUCTION

Facial bone fracture is one of the causes of patient visits to the emergency department (ER), accounting for more than 400,000 hospital visits per years in the United States.[1] Trauma to the face can cause various patterns facial bone fractures that can occur separately or together with trauma to other parts of the body. The medical staff treating the patient must pay attention to the principles of management of airway, breathing, and circulation (ABC) in stabilizing the patient because trauma to the facial bones can be disruptive the patient's airway and can be followed by other abnormalities such as the spine, intracranial or other vital organs. Treatment of facial bone fractures can be performed surgically or non-surgically. The management must be constant paying attention to the aesthetic, functional, and psychological effects on patients.[2,3]

Numerous studies have examined the demographic factors associated with facial trauma, utilizing various criteria for analysis. The epidemiology of facial bone fractures can differ based on the type of trauma, its severity, the cause of the injury, and the specific population under investigation. The diverse causes of facial bone fractures observed across different populations may stem from cultural disparities and a wide range of risk factors. These factors contribute to the intricate understanding of the prevalence and patterns of facial bone fractures, shedding light on the complex interplay between individual characteristics, environmental influences, and societal norms. By exploring the epidemiological aspects of facial trauma, researchers aim to enhance our knowledge of the underlying factors contributing to these injuries, identify vulnerable populations, and develop targeted preventive measures and appropriate treatment strategies. Continuous monitoring and analysis of epidemiological trends in facial bone fractures are essential for adapting healthcare systems and providing optimal care for individuals affected by such injuries.[1-3]

The incidence and severity of facial fractures can be influenced by the specific bones involved and the mechanism of injury. Motor vehicle collisions and gunshot wounds tend to result in more severe facial fractures, while falls and sports-related trauma are often less severe. The reported incidence and etiology of facial fractures vary significantly across different regions, reflecting a complex interplay of environmental, cultural, and socio-economic factors. Research conducted in various countries, including Singapore, New Zealand, Denmark, Japan, and the Middle East, has highlighted motor vehicle accidents as the leading cause of facial bone fractures in these regions. In contrast, developing countries such as Sub-Saharan

Africa and South Africa have shown a higher prevalence of maxillofacial trauma resulting from interpersonal violence, including fights, persecution, and shootings. Additionally, such data can inform the development of evidence-based treatment approaches and guide future research efforts aimed at improving patient outcomes and reducing the long-term sequelae of facial bone fractures.

METHOD

This study uses a cross-sectional descriptive method, because the research was only done at one time, and the results of the research are presented in the form of descriptive. Data regarding research subjects is secondary data taken retrospectively from medical records of facial bone fracture patients. The subjects of this study were facial bone fracture patients at the otorhinolaryngology head and neck surgery department between January 2016 - January 2021. The research sample will be excluded if the medical record data is incomplete.

RESULT

This research was carried out through medical record analysis of inpatient or outpatient with a diagnosis of facial bone fracture in otorhinolaryngology head and neck surgery department. The research subjects consisted of 70 medical record data included in the inclusion criteria were 30 medical record data and exclusion data as many as 40 medical record data according to the criteria of research subjects.

It was found that there were more research subjects found in male patients, namely a number of 20 people (66.6%) were compared with female patients, namely 10 people (33.33%). The highest age group was in the 11-20 year age group with 9 people (30%), followed in the 21-30 year age group by 6 people (20%), age group 41-50 years as many as 5 people (16.6%), age group 31-40 years, the age group 51-60 years, and the age group ≥60 years have the same number, namely 3 people (10%), followed by the age group 2-10 years with a total of 1 person (3.3%).

The occupation of the research subjects with the highest number is housewives as many as 7 people (23.35%), private employees and entrepreneurs have a number as many as 5 people (16.6%), 4 students (13.3%), civil servants 1 person (3.3%), 1 farmer (3.3%), 1 student people (3.3%). As many as 6 people (20%) of the research subjects did not have work.

Most etiology is a motor accident with 21 (70%) cases, followed by motorized collisions with 2 (6.7%) cases, violence with an amount of 1 (10%) case, exercising with a number of 1 (3.3%) case, and violation by the amount of 3 (10%) cases.

The diagnosis with the highest number of facial fracture patients is maxillary fracture with 15 (50%) cases, followed by orbital fractures with 8 (26.6%) cases, panfacial fractures 8 (26.6%) cases, nasal fractures 6 (20%) cases, mandibular fractures with a total of 5 (16.6%) cases, followed by zygoma fractures with a total of 3 (10%) cases, fractures dentoalveolar fractures with 3 (10%) cases, frontal fractures with 2 (6.6%) cases, and blow out with the amount of 2 (6.6%) cases. The diagnosis with the fewest numbers is fracture malar with an amount of 1 (3.3%) case. In this study it was found that the management obtained by all research subjects were surgical treatment with a total of 30 (100%), and none who only received non-surgical treatment.

DISCUSSION

In this study, 30 medical records of facial bone fracture patients were found in otorhinolaryngology head and neck surgery department for the period January 2016 – January 2021

which met the inclusion and exclusion criteria. Male patients namely a number of 20 people (66.6%) are those highest in this study compared to 10 women (33.1%). those results the same as what happened in several previous studies that the majority patients with facial trauma are male with a percentage of 56.8% - 92.8%. From this study, it was found that the age range with the highest number was age 11-20 years with a total of 9 people (30%), this data is different from the findings from previous studies which stated that the average age of the patient with facial fractures were aged 25-51 years. In this research it was also found that the majority of research subjects with facial fracture cases had work as a housewife as many as 7 people (23.3%).[5-16]

The study revealed that the primary cause of facial fractures among the patients examined was motor vehicle accidents, accounting for 70% of the cases. This finding aligns with previous research, which has consistently reported criminal activities as the leading cause of facial fractures, accounting for 44% to 61% of cases. Interestingly, contrasting with these findings, earlier studies had indicated that only 15.8% of facial fractures were attributed to traffic accidents. This disparity in findings emphasizes the importance of conducting comprehensive studies to better understand the underlying factors contributing to facial fractures. It highlights the dynamic nature of epidemiological trends and the influence of various contextual factors. Factors such as cultural norms, socio-economic conditions, and regional differences may play significant roles in shaping the etiology of facial fractures. Consequently, healthcare professionals, researchers, and policymakers must consider these contextual nuances when formulating prevention strategies and implementing targeted interventions to reduce the incidence of facial fractures. By continually examining the epidemiology of facial fractures and collecting comprehensive data, we can gain valuable insights into the changing patterns and causes of these injuries. Such insights can inform the development of evidence-based approaches for prevention, management, and treatment. Moreover, a better understanding of the etiology and incidence of facial fractures enables healthcare providers to allocate resources effectively, devise educational campaigns to promote safety and raise public awareness, and develop strategies to address specific risk factors prevalent in different populations and regions.[5-16]

However, the results of this study corroborate findings from similar investigations carried out across different countries worldwide, including Singapore, New Zealand, Denmark, Japan, and the Middle Eastern region. These studies consistently reveal that motor vehicle accidents rank as the primary cause of facial bone fractures in these regions. In contrast, developing nations, such as those in Sub-Saharan Africa and South Africa, exhibit a higher prevalence of maxillofacial trauma resulting from interpersonal violence, including incidents like fights, assaults, and shootings. These regional discrepancies in the causes of facial bone fractures underscore the intricate interplay between societal factors, cultural norms, and environmental conditions that contribute to the etiology of these injuries.

Furthermore, the findings of this study align with research conducted in the United States as well. A study focusing on the adult population in the United States revealed that criminal acts and motor vehicle collisions constituted the most common causes of facial bone fractures. These consistent findings across different geographical locations further emphasize the importance of understanding the specific factors influencing the occurrence and distribution of facial fractures in diverse populations.

By comparing and contrasting data from various studies, it becomes evident that the causes of facial bone fractures are

multifactorial and can be influenced by a combination of social, cultural, and environmental factors. The predominance of motor vehicle accidents in some regions can be attributed to factors such as traffic regulations, road infrastructure, and driving behaviors. On the other hand, the higher incidence of interpersonal violence-related fractures in certain developing countries may stem from socio-economic disparities, political instability, and cultural dynamics.

The comprehensive exploration of these factors and their impact on facial fractures can provide valuable insights for the development of preventive strategies, tailored healthcare interventions, and public awareness campaigns. Additionally, it highlights the importance of considering regional variations and contextual factors when formulating policies and guidelines for the management and prevention of facial bone fractures. Further research, encompassing a global perspective and encompassing diverse populations, will undoubtedly contribute to our understanding of the complex nature of facial fractures and ultimately help improve patient outcomes and public health initiatives

These similarities in findings across different regions and populations further emphasize the global significance of understanding the underlying causes of facial bone fractures. By examining the epidemiological data and comparing findings across different countries and regions, researchers can identify common trends and patterns in the etiology of facial bone fractures. This knowledge can inform the development of targeted prevention strategies, public awareness campaigns, and policies aimed at reducing the incidence of these injuries and improving overall population health. Furthermore, understanding the regional variations in the causes of facial bone fractures can help healthcare professionals tailor their treatment approaches and provide appropriate care based on the specific needs of each population. It highlights the importance of cultural sensitivity and context-specific interventions when managing facial trauma cases.[5-16]

The findings of this study revealed that the most prevalent diagnosis among the patients was maxillary fractures, accounting for 50% of the cases (15 cases in total). These results contrast with the data obtained from previous studies, which indicated that the mandible is the most commonly fractured bone in patients requiring surgical intervention, with a percentage ranging from 41.6% to 74.2%. Interestingly, in this study, the maxillary bone emerged as the second most frequently fractured bone, with a percentage of 39.8%. The variation in findings between this study and previous research sheds light on the diversity of fracture patterns observed in facial trauma cases. While previous studies have consistently identified the mandible as the primary site of fracture in surgical cases, the current study indicates a higher prevalence of maxillary fractures. This discrepancy emphasizes the importance of conducting further research to better understand the factors contributing to these variations in fracture distribution. Possible reasons for the differing results could include variances in the study population, geographical location, or even changes in the patterns of traumatic incidents over time. Additionally, differences in the inclusion and exclusion criteria, data collection methods, and sample sizes across studies may also contribute to the observed disparities. Therefore, it is crucial to consider these factors when interpreting and generalizing the findings of facial fracture studies. Further investigation and a broader range of studies involving diverse populations are warranted to gain a more comprehensive understanding of fracture patterns and their distribution within the facial skeleton..[5-16]

The severity of facial fractures can vary depending on the bones involved and the specific mechanism of injury. Certain factors, such as the underlying condition or cause of the fracture, can provide insights into the potential severity of the injury. For instance, facial fractures resulting from high-impact events like motor vehicle crashes or gunshot wounds are often more severe compared to those caused by falls or sports-related trauma, which tend to be less severe. In the present study, it was observed that all research subjects underwent surgical treatment, representing 100% of the cases. None of the subjects received non-surgical treatment alone. This finding highlights the prevalent use of surgical interventions as the primary management approach for facial fractures among the study participants. Surgical treatments are often employed to effectively address the complex nature of these fractures and ensure proper alignment and healing of the affected bones[5-16]

CONCLUSION

It can be concluded that in this study, the largest age group was found to be the ages of 11-20 year, male is the most patients who experience facial bones fractures, the most common etiology for facial bone fracture patients is an vehicle accidents, the most common diagnosis for patients with facial bone fractures is the maxillary fracture, and most cases are treated by surgical management.

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