International Journal of Life Sciences, Biotechnology and Pharma Research Vol. 13, No. 10, October 2024 Online ISSN: 2250-3137
Print ISSN: 2977-0122

DOI: 10.69605/ijlbpr_13.10.2024.79

ORIGINAL RESEARCH

Imperative Assessment of Clavicle and Mandible Fractures Reported in the Institutionalized Patients of North India; An Original Research Study

Dr. Shalini Kumari[1], Dr. Vaishnavi Dutta Mishra[2], Dr. Amresh Kumar[3]

[1]Assistant Professor, Department of Dentistry, Narayan Medical College and Hospital, Jamuhar, Sasaram, Bihar, India
[2,3]Assistant Professor, Department of Orthopaedics, Narayan Medical College and Hospital, Jamuhar, Sasaram, Bihar, India

Corresponding Author
Dr. Shalini Kumari
Assistant Professor, Department of Dentistry, Narayan Medical College and Hospital, Jamuhar, Sasaram, Bihar, India

Received Date: 19 August, 2024 Accepted Date: 24 September, 2024

ABSTRACT

Background and Aim: Mandible and clavicle are highly susceptible to fracture when injured or traumatized. Their incidence and occurrence is highly imperative in long term management of these fractures. The ultimate aim of this study was to assess the Clavicle and Mandible Fractures Reported in the Institutionalized Patients of North India. **Materials and Methods:** This study was conducted on total 80 patients including both male and female patients. Simple random sampling procedure was used for their selection. Patients with history of fractures who reported to the department during 1 year were included. Fracture data related to Clavicle and Mandible Fractures were explored. Different sites of fracture of clavicle were searched in the past record data. The relative incidences were noted and tabulated to form results. P value less than 0.05 taken as significant. **Statistical Analysis and Results:** Statistical analysis was completed by using statistical software Statistical Package for the Social Sciences version 22. Total 24 Patients were belonging to age group 25-30 years. Only 4 Patients were belonging to the age range of 45-50 years. Maximum 26 Patients were found in the age of 31-35 Yrs. Clavicle Type A was most commonly noted in Clavicle fracture. Condylar Neck Fracture was most commonly noted in Mandible fracture. Clavicle Type C was least commonly noted in Clavicle fracture. **Conclusion:** Within the limitations of the study, authors concluded that most of the reported fractures were in the younger patients of 25-35 years. Clavicle Type A and Mandibular Condylar Neck Fractures were most commonly noted fractures in Clavicle and Mandibular. Numerous other injuries such as mucosal wounds, facial injuries, brain injury, skull fracture, are also seen as allied injuries in Clavicle and Mandibular fractures.

Keywords: Clavicle, Mandibular, Fracture, Injury, Trauma, Oral Surgery

INTRODUCTION

Clavicle and Mandible Fractures are common injuries seen in most of the trauma cases. Clavicle fracture itself has an incidence rate of 2.5-5% of all types of fractures.[1-2] However, this incidence rate is significantly higher in younger populations and it implants up-to 10% of all fractures. Unilateral Clavicle fracture is commonly seen than bilateral Clavicle fractures. Most of the reported Clavicle fractures can be managed surgically or non-surgically.[3-6] Surgical management of Clavicle fractures includes external fixation, intra-medullary fixation, osteo-synthesis. External fixation is usually recommended for open fractures and non-union cases. Literature has well evidenced that mid-shaft region is most susceptible area for fracture and it accounts for more than 75% of all Clavicle fractures.[7-10] The high incidence of Mandible Fractures is possibly due to trauma to facial structures. Mandible is the most prominent mobile bone in the skull therefore it fractures easily in external impacts. Literature is overwhelmed with the studies of Mandible Fractures those happened in younger population.[11-13] Clinical management of Mandible Fractures always directed towards restoration of occlusion and function to facilitate immediate osseous healing. These processes

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may be further augmented by sufficient reduction and immobilization. Precise diagnosis of Mandible Fractures is done by careful clinical examination, radiographic analysis, CT scan analysis. Many researchers and pioneer workers have concluded that two-wheeler accidents are responsible for high incidence rates of para-symphysial fracture of mandible.[14-15] The ultimate aim of this study was to assess the Clavicle and Mandible Fractures Reported in the Institutionalized Patients of North India.

MATERIALS AND METHODS

This study was conducted on total 80 patients those reported to the outpatient department after trauma in last one year. Both male and female patients were included in the study. Patients with history of fractures who reported to the department during 1 year were involved and records were obtained from the department. The data included name, age, gender, the etiology and the site of the facial fractures. Case selection was completed very cautiously since authors planned to study microbiological status of saliva in different individuals. Simple random sampling procedure was used for their selection. By definition, simple random sampling is a part of the sampling technique in which each sample has an equal probability of being chosen. In this study, authors particularly explored the fracture data related to Clavicle and Mandible Fractures. Different sites of fracture of clavicle were searched in the past record data. These were specially Type A (A1 when fracture is extra-articular and A2 intra-articular), Type B (Comminuted Fracture), Type C (displaced fracture and needs operation). In mandible, various sites of fracture were studied and considered like condylar neck fracture, ramus fracture, body fracture, symphyseal fracture, para-symphyseal fracture coronoid process fracture. The relative incidences were noted and tabulated to form results. P value less than 0.05 taken as significant. Mandibular fracture always results into difficulty in opening of jaws. Teeth are often malpositioned and hence do not occlude in right ways. The major etiology for both mandibular and claviclular fracture was trauma, osteonecrosis and tumors.

STATISTICAL ANALYSIS AND RESULTS

Responses those noted from data processing were sent for statistical analysis using statistical software Statistical Package for the Social Sciences version 22 (IBM Inc., Armonk, New York, USA). The resulting data was subjected to appropriate statistical tests to obtain p values, mean, standard deviation, chi- square test, standard error and 95% CI. Table 1,2 and Graph 1 showed that out of 80 Patients, males were 45 and females were 35. Total 24 Patients were belonging to age group 25-30 years. Only 4 Patients were belonging to the age range of 45-50 years therefore we can presume that least of the fracture Patients were belonging to older age groups. P value was significant overall. Maximum 26 Patients were found in the age of 31-35 Yrs. Table 3 demonstrates about the patients distribution according to fracture reported to department. Clavicle Type A was most commonly noted in Clavicle fracture. Condylar Neck Fracture was most commonly noted in Mandible fracture. Clavicle Type C was least commonly noted in Clavicle fracture. Coronoid Process Fracture was least commonly noted in Mandible fracture. Table 4 illustrates about the Fundamental statistical description with level of significance evaluation using Pearson Chi-Square Test for Clavicle Fracture and Mandible Fractures. P value was highly significant for Clavicle Type B Fracture, Clavicle Type C Fracture, Mandible Ramus Fracture.

Table 1: Patients distribution according to fracture reported to department

Sex	Number [n]	Mean	SD	P value
Male	45	2.32	1.540	0.230
Female	35	2.12	1.232	

Table 2: Patients distribution according to age groups: Evaluation of level of significance using ANOVA test

		Patients distribution according to age groups						
Group	**Age Range**	**n**	**Mean**	**Male**	**Female**	**SD**	**P value**	
I	25-30 Yrs	24	2.24	14	10	1.320	0.001*	*Sig *p<0.05
II	31-35 Yrs	26	2.26	20	6	1.120		
III	36-40 Yrs	16	2.37	11	5	2.324		
IV	41-45 Yrs	10	2.22	7	3	2.125		
V	45-50 Yrs	04	2.29	3	1	2.225		

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Graph 1: Age & Gender Wise Distribution of Patients

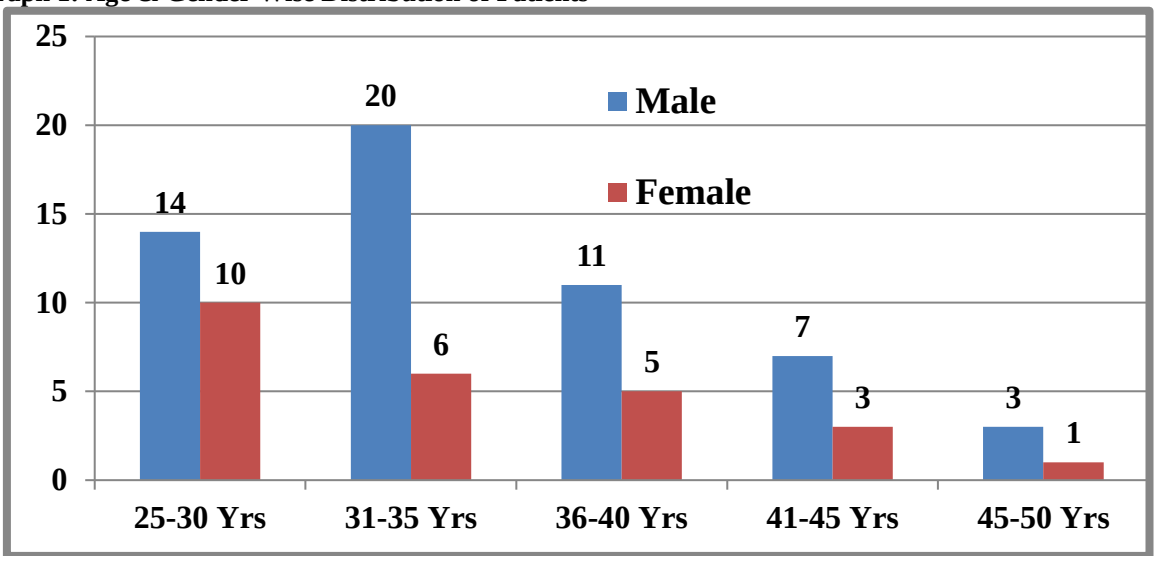

Table 3: Patients distribution according to fracture reported to department

Fracture	Number [n]
Clavicle	
Clavicle Type A	23
Clavicle Type B	21
Clavicle Type C	13
Mandible	
Condylar Neck Fracture	19
Ramus Fracture	14
Body Fracture	13
Symphyseal Fracture	11
Para-Symphyseal Fracture	9
Coronoid Process Fracture	4

Table 4: Fundamental statistical description with level of significance evaluation using Pearson Chi-Square Test for Clavicle Fracture and Mandible Fractures

Fracture	Mean	Std. Deviation	Std. Error	95% CI	Pearson Chi-Square Value	df	Level of Significance (p value)
Clavicle Type A	2.23	0.231	0.110	1.96	2.331	1.0	0.146
Clavicle Type B	2.16	0.214	0.010	1.16	2.232	2.0	0.010*
Clavicle Type C	2.13	1.146	0.018	1.26	2.198	1.0	0.020*
Condylar Neck Fracture	2.93	0.424	0.035	1.16	1.156	1.0	0.070
Ramus Fracture	2.13	0.176	0.125	1.46	2.320	3.0	0.001*
Body Fracture	1.47	0.152	0.129	1.96	2.163	1.0	0.135
Symphyseal Fracture	1.68	0.112	0.116	1.36	1.121	1.0	0.311
Para-Symphyseal Fracture	2.64	0.319	0.133	2.13	1.119	1.0	0.124
Coronoid Process Fracture	2.14	0.439	0.113	2.43	1.519	1.0	0.664
***p<0.05 significant**							

DISCUSSION

Overall improvement of the quality of life and healthiness of the citizens is deemed necessary in any nation. The relative occurrence of maxillofacial trauma can give valuable data regarding how people are troubled. It is also important to know how the particular geological area, the socioeconomic condition and communal activities may influence these types of injuries. Authoritarian monitoring of the incidence of maxillofacial trauma and related guidelines allows clinicians to adjust the training and professional development in a given time frame. Jin

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and associates studied in detail about the fracture patterns and causes in the craniofacial region. They stated that road traffic traumas are unavoidable hence all the relevant guidelines must be followed strictly.[16] Louis and other pioneer workers have experimented about the Midface Fractures. They confirmed that bones of the middle face region are primarily involved in the external trauma and impact.[17] Fridrich and associates comprehensively explored and reviewed about the Changing trends with mandibular fractures. They also stated that mandibular fractures are highly frequent in all maxillofacial traumas. Also, mandibular fractures are seen more commonly as a combination of other adjacent bony fractures. This was in agreement with the findings of pour results.[18] Alkan and colleagues have evaluated about the Biomechanical comparison of different plating techniques in repair of mandibular angle fractures. Their study results were highly imperative and can be utilized in the indicated clinical situations.[19] Neiner and other researchers have studied in detail about the Tongue Blade Bite Test Predicts Mandible Fractures. They recommended the clinical role of usage of Tongue Blade Bite Test in mandibular fractures.[20] Ellis and other researchers have studied about the patients with facial fractures. They stated that combination fractures are more common that a solo bony fractures. These were in agreement with the study results of ours.[21] Similar recommendations have been postulated by few other researchers also.[22-23]

CONCLUSION

Within the limitations of the study, authors concluded that maxillofacial trauma is becoming common nowadays. Migration towards metro cities and excessive vehicles on road are among common causes. In the present study, authors studied in detail about the mandible and clavicle fracture and concluded that both of the bones are highly vulnerable to fracture to an external impact or injury. Most of the reported fractures were in the younger patients of 25-35 years. Clavicle Type A and Mandibular Condylar Neck Fractures were most commonly noted fractures in Clavicle and Mandible. Numerous other injuries such as mucosal wounds, facial injuries, brain injury, skull fracture, limb injury, chest injury and spinal injuries are normally seen as allied injuries in Clavicle and Mandibular fractures.

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