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Prevalence of Mandibular Fractures, Maxillary Prognathism and Irreversible Pulpits in a known population

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ABSTRACT

Background: This study was conducted to assess the Prevalence of Mandibular Fractures, Maxillary Prognathism and Irreversible Pulpits in a known population.

Material and methods: This study comprised of 100 subjects who underwent oral clinical examination. The goal of the study was to assess the prevalence of mandibular fractures, maxillary prognathism and irreversible pulpitis. The study procedure had been explained to all the subjects and the patients had been asked to give consent. All the subjects agreed to sign the consent form and hence all had been involved in the trial. The demographic characteristics of the patients were recorded and the prevalence of the above-mentioned conditions had been tabulated. Statistical analysis was conducted using SPSS software.

Results: In this study, there were 35 cases of mandible fracture, 16 cases of maxillary prognathism and 49 cases of irreversible pulpitis. Hence, the prevalence of mandibular fractures, maxillary prognathism and irreversible pulpitis was 35%, 16% and 49%, respectively. There were 20 males and 15 females in group 1. Group 2 comprised of 10 males and 6 females. There were 26 males and 23 females in group 3. Overall, there were 56 males and 44 females in the trial.

Conclusion: The prevalence of mandibular fractures, maxillary prognathism and irreversible pulpitis was 35%, 16% and 49%, respectively.

Keywords: *Prevalence, Malocclusion, Irreversible pulpitis, Fracture*

1. INTRODUCTION

The demanding rhythm of contemporary existence, characterized by rapid transportation and an increasingly oppressive and authoritarian society, has led to facial trauma, a type of social affliction to which no individual is exempt. There have been alterations in the patterns of facial injuries, their severity, clinical manifestations, and other related aspects, resulting in varying degrees of disfigurement of the maxillofacial skeleton, accompanied by functional impairments. In addition to road traffic accidents (RTA) and acts of violence, both direct and indirect trauma can also arise from sports activities, falls, and the use of firearms. Furthermore, it may occasionally be a consequence of specific medical conditions such as cystic lesions, neoplasms, and metabolic disorders.[1] A fracture is defined as a "disruption in the continuity of bone."[2] The facial region is among the most commonly injured parts of the body, representing 23%–97% of all facial fractures.[3]

The pulp tissue responds to various irritants, primarily bacteria, via an inflammatory mechanism. The pathology of the pulp tissue can vary from reversible inflammation to severe irreversible inflammation leading to necrosis[4-6], depending on the intensity and duration of the irritant as well as the host's resistance.

This study was conducted to assess the Prevalence of Mandibular Fractures, Maxillary Prognathism and Irreversible Pulpits in a known population.

2. MATERIAL AND METHODS

This study comprised of 100 subjects who underwent oral clinical examination. The goal of the study was to assess the prevalence of mandibular fractures, maxillary prognathism and irreversible pulpitis. The study procedure had been explained to all the subjects and the patients had been asked to give consent. All the subjects agreed to sign the consent form and hence all had been involved in the trial. The demographic characteristics of the patients were recorded and the prevalence of the above-mentioned conditions had been tabulated. Statistical analysis was conducted using SPSS software.

3. RESULTS

Table 1: Group wise distribution of subjects based on the prevalence of conditions

Groups	Number of cases present (n=100)	Percentage
Group 1 (Mandibular Fractures)	35	35
Group 2 (Maxillary Prognathism)	16	16
Group 3 (Irreversible Pulpitis)	49	49
Total	100	100

In this study, there were 35 cases of mandible fracture, 16 cases of maxillary prognathism and 49 cases of irreversible pulpitis. Hence, the prevalence of mandibular fractures, maxillary prognathism and irreversible pulpitis was 35%, 16% and 49%, respectively.

Table 2: Gender-wise distribution of subjects

Groups	Number of males	Number of females
Group 1 (Mandibular Fractures)	20	15
Group 2 (Maxillary Prognathism)	10	06
Group 3 (Irreversible Pulpitis)	26	23
Total	56	44

There were 20 males and 15 females in group 1. Group 2 comprised of 10 males and 6 females. There were 26 males and 23 females in group 3. Overall, there were 56 males and 44 females in the trial.

4. DISCUSSION

Maxillofacial injuries have advanced to engender the debate among researchers all over the world due to the fact that it affects victim's functional and cosmetic deformities. And also, the etiological factors and pattern of maxillofacial injuries have been observed that it varies from one geographical area to another depending on the socioeconomic status, geographic condition, and cultural characteristics.[7-9]

As it is proved that mandible is the only facial bone that has mobility and the remaining portion is part of the fixed facial axis, the fracture of mandible is never neglected because it is very arduous pain that aggravates on mastication and phonation movements and even respiratory movements. Sometimes, there are facial asymmetry complaints.

The inflammatory response in the periapical tissues to physical, chemical, and/or bacterial irritants of the pulp can manifest as either acute or chronic, contingent upon the interaction between the host and the aggressor agent. This interaction is influenced by the presence of bacterial toxins and bacteria that penetrate the periapical tissues through the apical foramen.[10-12] Additionally, similar processes may occur in other regions of the periodontium, such as through a lateral canal or in the root division area, facilitated by communication between the pulp chamber floor and the periodontal tissue.

The WHO considers malocclusion one of the most important oral health problem, after caries and periodontal disease.[13] Its prevalence is highly variable and is estimated to be between 39% and 93% in children and adolescents.[14,15] This prevalence

range is very wide and heterogeneous. This inhomogeneity may be due to ethnic and age differences of patients considered in studies, assessing the prevalence of malocclusion.[16]

Malocclusions can occur in three different spatial planes: sagittal, transverse and vertical. It is possible to identify three different types of skeletal relationship in the sagittal plane, defined from the analysis of the ANB angle, which represents the antero-posterior intermaxillary relationship.

This study was conducted to assess the Prevalence of Mandibular Fractures, Maxillary Prognathism and Irreversible Pulpits in a known population.

In this study, there were 35 cases of mandible fracture, 16 cases of maxillary prognathism and 49 cases of irreversible pulpitis. Hence, the prevalence of mandibular fractures, maxillary prognathism and irreversible pulpitis was 35%, 16% and 49%, respectively. There were 20 males and 15 females in group 1. Group 2 comprised of 10 males and 6 females. There were 26 males and 23 females in group 3. Overall, there were 56 males and 44 females in the trial.

Chaurasia A et al[17] conducted a study that aimed to know the age- and sex-related prevalence of parasymphyseal fracture, fracture of angle, condylar fracture, symphyseal fracture, and coronoid fracture of mandible in North Indian population. It also evaluates the correlation of prevalence of parasymphyseal fracture, angle of mandible, condylar fracture of mandible, symphyseal fracture of mandible, and coronoid fracture of mandible. All patients fulfilling the selection criteria and having mandible fracture were selected for the study. The data about mandibular fracture was collected by means of a structured questionnaire including age, sex, and anatomic site of fracture. Qualitative variables were compared using Chi-square test/Fisher's exact test as appropriate. The study population consists of 1015 individuals aged between 7 and 68 years with the mean age of 33.49 ± 11.79 years. The most common anatomic site for mandibular fracture was parasymphyseal region (40.3%) followed by angle (28.8%), condyle (27.6%), and symphysis (12.5%) of mandible. The coronoid process of mandible (44, 4.3%) was least involved in mandibular fracture. Males (30.8%) are more predilected for condylar fracture than females (15.7%). The mandibular symphyseal fracture is more common in male (14.9%) than female (3.7%). Mandibular fractures occur in people of all ages and races, in a wide range of social settings. Their causes often reflect shifts in trauma patterns over time. The present assessments of mandibular fracture will be valuable to government agencies and health-care professionals involved in planning future programs of prevention and treatment.

Perez AS et al[18] in their study, estimated the prevalence of pulp and periapical pathologies and their distribution according to sex, age, affected teeth, and etiological factors found in patients the DEPeI, FO, UNAM Endodontic Postgraduate Program during the period 2014–2019. The data collected were from the records of the Single Clinical File of patients treated at the Endodontic Specialization Clinic, DEPeI, FO, UNAM, period 2014–2019. The following variables were recorded for each endodontic file: diagnosed pulp and periapical pathology, sex, age, affected tooth, and etiological factor. Descriptive statistical analysis was performed with 95% CI (Confidence intervals). Of all the registers reviewed, irreversible pulpitis (34.58%) and chronic apical periodontitis (34.89%) proved to be the most prevalent pulp and periapical pathologies, respectively. The female sex predominated (65.36%). The age group that requested the most endodontic treatment, according to the records reviewed, was 60 or older (36.99%). The most treated teeth were the upper first molars (24.15%) and lower (36.71%), and the most prevalent etiological factor was dental caries (84.07%). Irreversible pulpitis and chronic apical periodontitis were the most prevalent pathologies. The predominant sex was female, and the age group was 60 years or older. The first upper and lower molars were the most endodontically treated teeth. The most prevalent etiological factor was dental caries.

5. CONCLUSION

The prevalence of mandibular fractures, maxillary prognathism and irreversible pulpitis was 35%, 16% and 49%, respectively.

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