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INCIDENCE OF PARAESTHESIA OF LIP IN PATIENT WHO HAD MANDIBULAR FRACTURE PREOPERATIVELY

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ABSTRACT

Background:- Mandibular fracture is the most common facial bone fracture. Fractures occurring at the Para symphysis region frequently result in mental nerve injury, due to which anaesthesia or paraesthesia of the skin and mucous membrane within the distribution of mental nerves may be observed and may cause reduced quality of life for patients.

Aim:- of this study was to retrospectively analyse and evaluate the prevalence rate of mental nerve injury in patients that reported to the department of oral and maxillofacial surgery, managed conservatively or open reduction and internal fixation method.

Materials and methods:- The patients who underwent mandibular fracture management were followed by and asked about lip paresthesia. The data obtained were tabulated in excel and were transferred to spss and statistical analysis was done.

Results:- 0.38% of the total female population and 0.47% of the male population were found to experience lip paresthesia followed by mandibular fracture management.

Conclusion:-From the study we have concluded that gender did not significantly affect the nerve damage that lead to lip paresthesia.

INTRODUCTION

Mandible fractures account for 35–80% of all maxillofacial fractures. Etiologic factors of facial fracture are variable and depend on regional and social characteristics. In a review of more than ten thousand patients, mandibular fracture is most common in patients aged between 18 and 24 years and seen four times as frequent in male patients compared with female patients. Mechanism of injury is commonly assault, followed by motor vehicle accidents and falls [(Lamphier et al. 2003)]. Fractures of the mandible are treated to restore the function, anatomy, and form. Depending on the location and surgical skills, various treatment strategies have been described and used in the management of these fractures. These have included nonoperative management, treatment with intermaxillary fixation (IMF), open treatment with reduction, open treatment with internal fixation using various profile plates, closed treatment with external fixation, and treatment with Kirschner wires [(Miloro and Kolokythas 2012)].Despite advances, treatment of mandibular fractures has continued to be associated with multiple complications. Mandibular angle fractures, in particular, have been fraught with high postoperative complication rates [(Ellis and Walker 1996; Ellis and Walker 1994)] Several factors can contribute to the high incidence of complications, including a lack of an appropriate protocol, inappropriate technique, the patient's medical condition, fracture type, substance abuse, number of fractures, concomitant injuries, unique function, timing of fracture repair, and fracture location. The complications can include infection, osteomyelitis, nonunion, malunion, and wound dehiscence and paresthesia[(Iizuka and Lindqvist 1993; Anderson and Alpert 1992; Iizuka et al. 1991)]. Lip paresthesia is

commonly observed when nerve damage happens.The buccal branch of the facial nerve, or cranial nerve VII, provides motor innervation to the orbicularis oris and elevators of the lip and lip angle. The majority of muscles responsible for depression of the lip are supplied via the marginal mandibular branch of the facial nerve. The platysma, which is also involved in depression of the lower lip, receives its innervation via the cervical branch of the facial nerve. The various branches of the trigeminal nerve, or cranial nerve V, provide sensory innervation to the lips. The infraorbital branch of the maxillary division of the trigeminal nerve (cranial nerve V2) supplies the upper lip. The mental nerve derived from the mandibular division of the trigeminal nerve (cranial nerve V3) allows for sensation from the lower lip. Hence damage of any of these nerves can result in lip paresthesia.
Sensory nerve injury (inferior alveolar and mental nerves) commonly occurs with mandibular fractures. In 11–59% of displaced mandibular fractures, there is sensory nerve injury at diagnosis. Causes of inferior alveolar or mental nerve injury are displaced fractures, delay in treatment, and improper use of drill or screws. According to the literature, the overall prevalence of sensory disturbance after treatment of mandibular fractures is variable (53.8–76.1%) [(Iizuka and Lindqvist 1991; Marchena et al. 1998)]. Facial nerve dysfunction can result from mandibular trauma. Damage of the facial nerve after temporal bone fractures can lead to paralysis. Condylar dislocations can cause facial nerve injury distal to the stylomastoid foramen. Injury to the facial nerve branches usually takes place iatrogenically during surgical treatment, though lateral displacement of the condyle can cause facial nerve injury.
Our team has extensive knowledge and research experience that has translate into high quality publications(J et al. 2018),(Wahab et al. 2018),(Mudigonda et al. 2020),(Narayanasamy et al. 2021),(Wang et al. 2021; Li et al. 2019; Ma et al. 2019; Bishir et al. 2020; Fan et al. 2021; Zhang et al. 2020; Gan et al. 2019; Saravanakumar et al. 2021; Veeraraghavan et al. 2021; Wei et al. 2021) (Sathya et al. 2020),(Chandrasekar et al. 2020; Ramakrishnan et al. 2019; Felicita and Sumathi Felicita 2018).(Su et al. 2019; Wan et al. 2020)

MATERIALS AND METHODS

The study was conducted in a university setting. Being done with the entries of one university the pros regarding the study were that the data were already available and the data belonged to individuals with similar ethnicity. The cons of the study were geographic limitations, locations, and also the trends of other locations were not assessed.

The study is a retrospective cross-sectional study and the data were collected within a time period of June 2020 to March January 2021. There were two reviewers for the study. Ethical approval was provided by the University ethical committee. A total of fifty seven entries were assessed. To ensure the validity of the data the patients were contacted through telephone. The data was tabulated by using Microsoft Excel software. It was then exported to SPSS for statistical analysis. The analysis was conducted by the Chi-square test.

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RESULTS

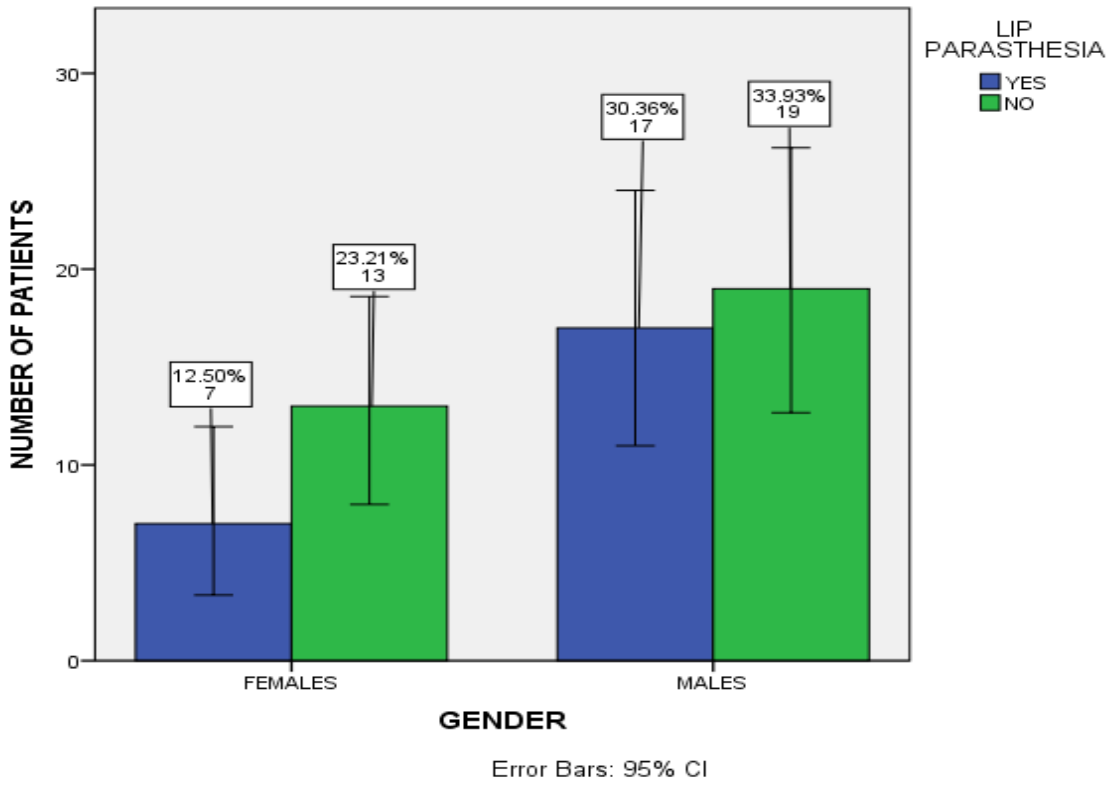

Figure 1 depicts the bar diagram, x axis represents the gender and y axis represents the number of patients presented with and without paresthesia.

GENDER * LIPPARESTHESIA Crosstabulation

Count

		LIPPARESTHESIA		
		YES	NO	Total
GENDER	FEMALE	8	13	21
	MALE	17	19	36
Total		25	32	57

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	.449[a]	1	.503		
Continuity Correction[b]	.155	1	.694		
Likelihood Ratio	.451	1	.502		
Fisher's Exact Test				.586	.348
N of Valid Cases	57				

a. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 9.21.

b. Computed only for a 2x2 table

TABLE 1 depicts the association of gender and mandibular fracture. The p value was found to be 0.34 making the relation insignificant.

DISCUSSION

The maxillofacial region is highly vulnerable to injuries during trauma and its occurrence is approximately 5–33% with the mandible being the most commonly involved site accounting for 12%. The sheer pace of modern life as well as an increasingly aggressive and intolerant society has made facial trauma a form of social disease to which no one is immune, particularly the youth.

The mandible is the only movable bone of the maxillofacial complex, whereas the remaining portion is part of the fixed facial axis. Fracture in the mandible is never left unnoticed because it is symptomatic and the pain worsens with mastication, phonetics and even during respiratory movements accompanied by facial asymmetry.

Mandibular fractures may lead to deformities caused by displacement or non-restored bone loss, also affecting the dental occlusion or temporomandibular joint. If not identified and appropriately treated, these lesions may lead to severe sequelae, exerting its impact on both cosmetics as well as function.
In a few studies done in the past, results similar to ours were obtained about the insignificant relation that we found between gender and lip paresthesia (Yadav et al. 2016).

CONCLUSION

From the study we have concluded that gender did not significantly affect the nerve damage . Early management can reduce the risk of permanent neurosensory deficits associated with mandibular fracture.

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AUTHOR CONTRIBUTION

Author 1(Chithralekha B), carried out the study by conducting the survey and drafted the manuscript after performing the necessary statistical analysis. Author 2(Dr. Arun Murugaiyan) aided in conception of the topic, has participated in the study design, statistical analysis and has supervised the preparation of the manuscript. All the authors have discussed the results among themselves and contributed to the final manuscript.

CONFLICTS OF INTEREST

All the authors declare that there was no conflict of interest in the present study.

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