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Original Research Article

PREVALENCE OF MALOCCLUSION AMONG PATIENT SEEKING ORTHODONTIC TREATMENT AT TERTIARY MEDICAL CENTRE OF EASTERN INDIA

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Conflict of interest: Nil

Abstract

Introduction: The aim of study was to analyze the pattern of malocclusion and their prevalence among patient visiting Dental College, Ranchi to establish baseline date for developing better treatment facility and future research Work.

Settings and Design: All the patients were examined in a Dental Chair light and evaluation of Occlusion position in centric occlusion were recorded by asking the subject to swallow and then to Occlude. The samples were divided into Different groups, on the basis of Angle's classification. A qualitative analysis with Angle's classification was used to describe the anteroposterior relationship of maxillary and mandibular first molars.

Material and Methods: The study was conducted on 1720 patients who attended the orthodontic department from February 2017 to January 2020. Each patient was examined for malocclusion, dentofacial patterns and dentofacial characteristics were recorded. The pattern and prevalence of different malocclusion was assessed.

Results: The results of the study showed that most common malocclusion was Angles class I. Total of 1219 (70.66%) Patients reported with Angles Class I malocclusion. The second most common malocclusion was Angles Class II with Increase Over jet 392 (22.72%). The least common malocclusion was Angles Class III 37 (02.14%).

Conclusion: Most Prevalent malocclusion among patient consulting for orthodontic treatment in Dental College, Ranchi is Angles Class I malocclusion. Among class I malocclusion crowding of teeth is more prevalent than spacing of teeth.

Keywords: Malocclusion, Angels Classification, Prevalence.

INTRODUCTION

Malocclusion is defined as an irregularity concerning teeth alignment or their relationship during dental occlusion beyond the range of what is beyond the range of what is accepted as normal occlusion. Appreciable deviations from the ideal that may be considered aesthetically or functionally unsatisfactory are called malocclusion. A malocclusion that is considered to be unsightly by one patient may be acceptable to another, depending upon other facial features, personality and attitudes. Malocclusion is considered the third priority for oral health disease according to world health organization next to dental caries and periodontal disease [1]. An orthodontic problem can affect several oral functions as mastication, swallowing and speech[2].

The most common reason behind this is an inadequate implementation of preventive oral health care programs which need a sound base of epidemiological data. Epidemiological studies on occlusion and malocclusion not only help in orthodontic treatment planning and evaluation of dental health services but also offer a valid research tool for ascertaining the operation of distinct environmental and genetic factors in the aetiology of malocclusion[3].

Early prevention and interception of malocclusion will reduce High cost of braces treatment and reduces dependence on specialised professional. There have been several studies investigating the prevalence of various malocclusions in different population but only a few studies have been done on orthodontic population [4]. The aim of the study was to provide quantitive information regarding the pattern of dentofacial characteristics in orthodontic patients and to find the frequencies of Angle's classes and gender pattern among each type of malocclusion. The goal of the present research was to understand the distribution pattern of malocclusion among the tribal dominant population of Ranchi.

MATERIAL AND METHODS

The present study was carried on 1720 subjects of age group from 14 to 35 years. The subjects were selected from the patients reporting to the OPD of Department of Orthodontics and Dentofacial orthopaedics of Rajendra Institute of medical sciences, Ranchi. Dental Institute is a Tertiary hospital of Jharkhand Government specialised for dental treatment under Rajendra Institute of Medical Sciences in Ranchi. The study was done on orthodontic patients who visited department of Orthodontics from February 2017 to January 2020.

The Inclusion criteria for selection of the patient were as follow: (a) All first molars should be present. (b) No previous history of orthodontic treatment in either arch. Data collection was based on clinical examination of patient at centric occlusion position. All patients were asked to shallow and then bite to occlusion position. All patients were examined by investigator who had completed MDS in Orthodontics.

All the patients were examined in a Dental Chair light and evaluation of Occlusion position in centric occlusion were recorded by asking the subject to swallow and then to Occlude. The samples were divided into Different groups, on the basis of Angle's classification.

The patient with mixed dentition or deciduous dentition, missing first molar were excluded from study.

A qualitative analysis with Angle's classification was used to describe the anteroposterior relationship of maxillary and mandibular first molars.

Group I: Angle's Class I molar relationship with one or more of these characteristics: crowded Incisors, protruded maxillary incisors, anterior cross-bite, unilateral or bilateral posterior cross-bite, anterior or posterior openbite and deep anterior overbite.

Group II: Class II Division 1 malocclusion

Group III: Class II Division 2 malocclusion

Group IV: Class III malocclusion:

Statistical Analysis: The data as collected sorted and tabulated in Excel. The data was then statistically analysed using Graph Pad Prism Software (Version 5). For Quantitative analysis mean and standard deviation were estimated in the sample for each study group. For qualitative analysis was compared using chi-square to find the P values.

RESULT

The prevalence of Angle's class I malocclusion was the highest (70.66%) and that of Angle's Class III was the least (2.14%). The second most prevalent

malocclusion was Angle's Class II Division 1. The total prevalence of Angle's Class II malocclusion was 26.2%. Among Class II malocclusion the prevalence of Angle's Class II Division 1 was 22.72% and prevalence of Angle's Class II Division 2 malocclusion was 4.17%. Among all malocclusion, Angle Class I malocclusion was observed statistically significant. [Table:1]

DISCUSSION

Pattern of malocclusion characteristics exhibit various ethnic and geographical variation5. Worldwide data shows malocclusion is more prevalent in Whites than in blacks, more in developed countries than developing countries and more in urban as compared to rural population [6]. Disto-occlusion in India is very low in contrast to white American (34%) and European population [7] (29%).

The present study show Angle's Class I malocclusion was found in 1219 (70.66%) subjects which is similar to study by Shaikh et al in 1960, which reported 68% class I Malocclusion in children of Mumbai. The Angles Class II malocclusion was found in 464 (26.8%) which is lower compared to American whites (34%). The Angle's Class III malocclusion was found 37 (02.14%) subjects.[Figure:1]

Various studies have been conducted to determine the prevalence in malocclusion among Indian children. Shourie in 1942 was the first to study prevalence of malocclusion among children of age group of 13-16yrs. He found malocclusion in 50% population. Sidhu (1968) in Delhi examined 6years to 30 years age group and observed malocclusion to be high as 90%. His observed that the prevalence of malocclusion was more in urban area compared to rural area [8,9].

Prasad A Rajendra and Savadi S conducted an epidemiological study of malocclusion in girl of age 5-15yrs in Banglore city in 1971. They reported that incidence of malocclusion was as high as 85.7% with 51.5% Angle's class I, 4% Angle's Class II and 0.9% Angle's Class III10. Kharbanda, sidhu, Sundram (1991) in Delhi reported 36.6% malocclusion in age group of 5-13years among 5554 school children [11,12].

Jalili VP et al 1989 studied on tribal children, a lower prevalence of malocclusion than the urban children. This study was conducted on tribal children of 6 to 14 year age group in mandu district of Madhya Pradesh13. His finding was only 14.4% had malocclusion and only 3.8% Class II Malocclusion. These suggest lower prevalence of malocclusion in rural area[14].

There is very less study done on prevalence of malocclusion in eastern India. The state of Jharkhand is dominated by tribal population but there is multi ethnic population is found in Ranchi, capital of Jharkhand. The severity and health burden of malocclusion impact oral health of major population. These data will help policy maker to provide orthodontic treatment facility to rural population.

CONCLUSION

In this Institution-based study, the frequency of Angles class I, II and III malocclusion was found to be 70.65%, 26.8% and 2.14% respectively. Malocclusions are the result of irregularities in the development of the facial and position of teeth are common. Many are congenital but some may acquired by faulty habits during childhood or by premature loss of deciduous teeth. Prevention of occurrence of dental caries by various preventive programmes and early treatment of caries by various preventive programmes and an early treatment of caries still remain one of the best means of reducing the occurrence of malocclusion. In European countries with a well-developed health care system, such information is readily available. But in developing countries like India the data

and Need of preventive and treatment programmes are lacking. This study will help in policy and decision maker for creating road map for Prevention and treatment of malocclusion.

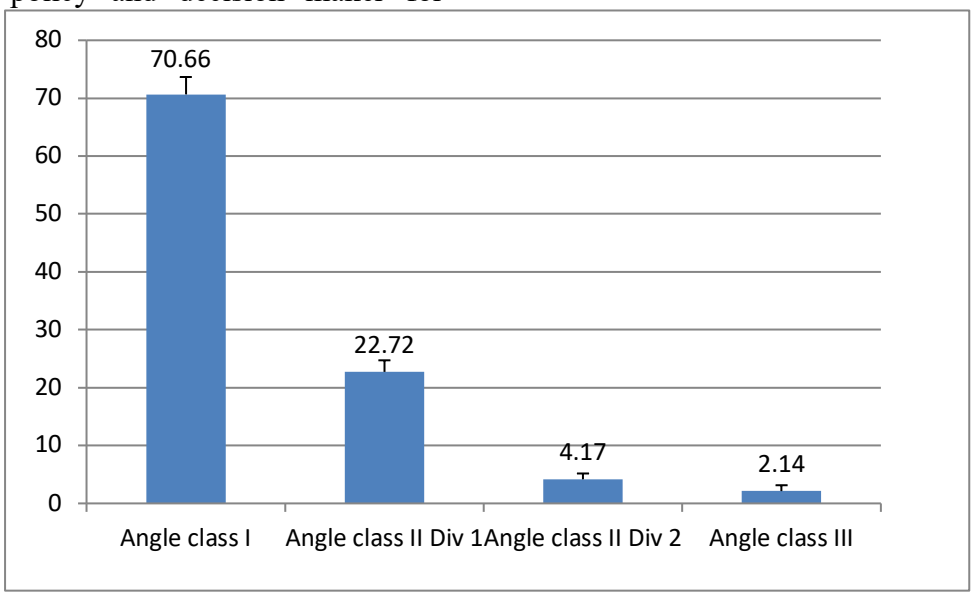

Figure 1: Distribution of Different Malocclusion

Table: 1: Distribution of sample by Angle's Classification

Angles Classification	Total Number	Percentage (%)
Class I Malocclusion	1219	70.66%
Class II Division 1Malocclusion	392	22.72%
Class II Division 2 Malocclusion	72	04.17%
Class III Malocclusion	37	02.14%

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