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Prevalence and Treatment of Malocclusion with Myofunctional Appliances and Partial Edentulism in Children of a Known Population.

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KEYWORDS
FPD, activator, bionator, myofunctional aplliances.

ABSTRACT:

Background: This study was conducted to assess the prevalence and treatment of malocclusion with myofunctional appliances and partial edentulism in children of a known population.

Material and methods: One hundred youngsters, ages ten to twenty, participated in this study. A complete oral examination was performed on each individual. Prior to beginning the operation, these subjects provided written informed consent. The children's ages were 14.2 years old on average. Software called SPSS was used to perform statistical analysis. After it was discovered that thirty children had class 2 malocclusion, appliances called activators and bionators were made specifically for them.

Results: In this study, it was found that out of 100 participants, 70 had partial edentulism and 30 subjects had class 2 malocclusion. The subjects who had a few of their teeth missing got fixed partial dentures. And in the subjects having class 2 malocclusion, activator was given in 14 subjects and in the remaining 16 subjects, bionator was given.

Conclusion: The subjects having class 2 malocclusion had been managed with myofunctional appliances like activator and bionator and the subjects with partial edentulism had been managed with fixed partial dentures.

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Introduction

Malocclusion is defined as any mal-relationship of dental arches with or without an irregularity of the teeth.[1] Malocclusion is considered as a developmental disorder and a public dental health problem having high prevalence and treatment needs.[2] Altered oral functions like mastication, speech, swallowing, etc may lead to oro-facial adaptability which may result in malocclusion.

This ultimately disturbs the individual's social wellbeing.[3] In most of these studies, Angle's classification has been widely used as a qualitative epidemiological tool.[1, 2, 3] Several studies on the prevalence of occlusal traits in different populations have been reported in the orthodontic literature and such a study on an isolated human population can provide valuable information about the causes of malocclusion.[2, 3, 4]

In many developed countries, where the specialties of Orthodontics and Pedodontics have been well-established, sufficient information on the prevalence of malocclusion is available. However, in developing nations of the world like India, such information is still inadequate.[5]

Recognition of occlusal malocclusion severity is important to determine the best treatment approach. The same malocclusion although with differing severity will be amenable to very different treatment protocols[5,6,7]. A full cusp Class II malocclusion, for example, requires more patient compliance in using removable orthodontic devices and more ability and experience of the orthodontist, than a ¼ cusp Class II malocclusion[8]. However, it is very unusual to find papers that clearly provide the occlusal discrepancy severity of the sample used. Additionally, the use of cephalometric variables is often more common than the occlusal parameters, although suggestion of including additional occlusal details has been made.[9,10]

This study was conducted to assess the prevalence and treatment of malocclusion with myofunctional appliances and partial edentulism in children of a known population.

Material and methods

One hundred youngsters, ages ten to twenty, participated in this study. A complete oral examination was performed on each individual. Prior to beginning the operation, these subjects provided written informed consent. The children's ages were 14.2 years old on average. Software called SPSS was used to perform statistical analysis. After it was discovered that thirty children had class 2 malocclusion, appliances called activators and bionators were made specifically for them.

Results

Table 1: Prevalence of various dental anomalies.

Dental anomalies	Number of subjects	Percentage
Partial edentulism	70	70%
Class 2 malocclusion	30	30%
Total	100	100%

It was found that out of 100 participants, 70 had partial edentulism and 30 subjects had class 2 malocclusion.

Table 2: treatment of the dental anomalies.

Dental anomalies	Treatment
Partial edentulism	Fixed partial dentures
Class 2 malocclusion	Activator and bionator

The subjects who had a few of their teeth missing got fixed partial dentures. And in the subjects having class 2 malocclusion, activator was given in 14 subjects and in the remaining 16 subjects, bionator was given.

Discussion

Class II division 1 malocclusion presents as a frequent challenge in many orthodontic practices. Class II division 1 malocclusion is reported to affect nearly 27% of 12-year-olds in the UK.[11] However, a frequency as high as 49% of Class II malocclusion has been reported in several studies.[12,13] As a consequence, different treatment approaches and modalities have been often used to correct this type of malocclusion.[14,15]

Functional appliances have been a popular choice for many clinicians during the early treatment of Class II division 1 malocclusion. A recently updated Cochrane review suggested that different types of functional appliances were effective in reducing the prominence of

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the upper front teeth.[15] Furthermore, there appears to be low-to-moderate quality of evidence suggesting a favourable decrease in the incidence of incisal trauma when these appliances were used in the early treatment of Class II division 1 malocclusion compared to a single phase in adolescence.

This study was conducted to assess the prevalence and treatment of malocclusion with myofunctional appliances and partial edentulism in children of a known population.

In this study, it was found that out of 100 participants, 70 had partial edentulism and 30 subjects had class 2 malocclusion. The subjects who had a few of their teeth missing got fixed partial dentures. And in the subjects having class 2 malocclusion, activator was given in 14 subjects and in the remaining 16 subjects, bionator was given.

Vie J et al (2021)[16] evaluated and compared the treatment effects of activator appliances on untreated class II skeletal malocclusion patients in terms of skeletal, dental, and soft tissue changes. They searched 11 databases from January 1966 to May 2021 for randomized and clinical controlled trials that compared the treatment effects of activator appliances on untreated Class II skeletal malocclusion patients. All data were analyzed using RevMan 5.3 software. According to the inclusion/exclusion criteria, 16 articles qualified for the final analysis. Thirteen outcome indicators of teeth, bone tissue, and soft tissue were compared and analyzed: SNA°, SNB°, ANB°, SN-MP°, ANS-Me, Co-Gn, Go-Me, overjet, overbite, U1-SN°, L1-MP°, UL-E, and LL-E. Five randomized controlled trials (RCTs) evaluations were of medium quality, and 11 controlled clinical trials (CCTs) evaluations were of B grade. Bone tissue changes: compared with the untreated group, the SNA and ANB decreased, and the SNB, SN-MP, ANS-Me, Co-Gn, and Go-Me increased after activator appliance treatment, and the differences were statistically significant ($P<0.001$). Dental changes: compared with the untreated group, the overjet, overbite and U1-SN in the treated group decreased significantly, while the L1-MP increased significantly ($P<0.0001$). Soft tissue changes: compared with untreated patients, the UL-E of patients treated with an activator appliance decreased significantly ($P<0.0001$); however, there was no significant difference in the LL-E between the two groups ($P=0.09$). Since the imprecision and high level of heterogeneity of the articles, further large-sample and high-quality clinical trials are necessary to evaluate effects of orthodontic treatment with activator appliance on patients with skeletal Class II malocclusion. In addition, this study failed to explore the long-term stability of activator treatment, so long-term studies are needed to assess the stability of its effect on the skeletal, dental, and soft tissue changes.

Conclusion

The subjects having class 2 malocclusion had been managed with myofunctional appliances like activator and bionator and the subjects with partial edentulism had been managed with fixed partial dentures.

References

1. Angle E.H. Classification of malocclusion. Dent Cosmos. 1899;41:248–264.
2. Das U.M., Venkatsubramanian Reddy D. Prevalence of malocclusion among school children in Bangalore, India. Int J Clin Pediatr Dent. 2008;1:10–12.
3. Tak M., Ramesh N., Sharda A.J., et al. Prevalence of malocclusion and orthodontic treatment needs among 12-15 years old school children of Udaipur, India. Eur J Dermatol. 2013;7:45–53.
4. Al Jadidi L., Sabrish S., Shivamurthy P.G., Senguttuvan V. The prevalence of malocclusion and orthodontic treatment need in Omani adolescent population. J Orthodont Sci. 2018;7:21–27.
5. Onyeaso C.O. Prevalence of malocclusion among adolescents in Ibadan, Nigeria. Am J Orthod Dentofacial Orthop. 2004;126:604–607.
6. Janson G, Graciano JT, Henriques JF, Freitas MR, Pinzan A, Pinzan-Vercelino CR. Occlusal and cephalometric Class II Division 1 malocclusion severity in patients treated with and without extraction of 2 maxillary premolars. Am J Orthod Dentofacial Orthop. 2006;129(6):759–767.
7. Janson G, Janson M, Nakamura A, Freitas MR, Henriques JF, Pinzan A. Influence of cephalometric characteristics on the occlusal success rate of Class II malocclusions treated with 2- and 4-premolar extraction protocols. Am J Orthod Dentofacial Orthop. 2008;133(6):861–868.
8. Janson G, Valarelli FP, Cançado RH, Freitas MR, Pinzan A. Relationship between malocclusion severity and treatment success rate in Class II

nonextraction therapy. Am J Orthod Dentofacial Orthop. 2009;135(3):274–274. e1-8; discussion 274-5.

9. Janson M, Janson G, Sant'Ana E, Simão TM, Freitas MR. An orthodonticsurgical approach to Class II subdivision malocclusion treatment. J Appl Oral Sci. 2009;17(3):266–273.
10. Keeling SD, McGorray S, Wheeler TT, King GJ. Imprecision in orthodontic diagnosis: reliability of clinical measures of malocclusion. Angle Orthod. 1996;66(5):381–391.
11. Foster, T.D. and Day, A.J. (1974) A survey of malocclusion and the need for orthodontic treatment in a Shropshire school population. British Journal of Orthodontics, 1, 73–78.
12. Josefsson, E., Bjerklin, K. and Lindsten, R. (2007) Malocclusion frequency in Swedish and immigrant adolescents–influence of origin on orthodontic treatment need. European Journal of Orthodontics, 29, 79–87.
13. Lauc, T. (2003) Orofacial analysis on the Adriatic islands: an epidemiological study of malocclusions on Hvar Island. European Journal of Orthodontics, 25, 273–278.
14. Bishara, S.E., Cummins, D.M. and Zaher, A.R. (1997) Treatment and posttreatment changes in patients with Class II, Division 1 malocclusion after extraction and nonextraction treatment. American Journal of Orthodontics and Dentofacial Orthopedics, 111, 18–27.
15. Batista, K.B., Thiruvenkatachari, B., Harrison, J.E. and O'Brien, K.D. (2018) Orthodontic treatment for prominent upper front teeth (Class II malocclusion) in children and adolescents. Cochrane Database of Systematic Reviews, 3, CD003452.
16. Xie J, Huang C, Yin K, Park J, Xu Y. Effects of orthodontic treatment with activator appliance on patients with skeletal Class II malocclusion: a systematic review and meta-analysis. Ann Palliat Med. 2021 Dec;10(12):12319-12334.