Prevalence of root caries, class 2 malocclusion and edentulism subjects of a known population and its management with apicoectomy, myofunctional appliances and complete denture, respectively.

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Abstract

Background: This study was conducted to assess the prevalence of root caries, class 2 malocclusion and edentulism subjects of a known population and its management with apicoectomy, myofunctional appliances and complete denture, respectively.

Material and methods: This study was conducted to assess the prevalence of root caries, class 2 malocclusion and edentulism subjects of a known population and its management with apicoectomy, myofunctional appliances and complete denture, respectively. The study comprised of 100 subjects. The subjects had been informed about the procedure and had been asked for consent. 10 out of 100 subjects did not give consent and hence, had been excluded from the study. overall, 90 subjects had been included in the study. All the subjects had undergone oral clinical examination. The prevalence of root caries, class 2 malocclusion and edentulism had been assessed. The findings had been tabulated. Statistical analysis had been conducted using SPSS software.

Results: It was found that 30 subjects had root caries, 30 subjects had class 2 malocclusion and 30 subjects were completely edentulous. The subjects had been divided into 3 groups of 30 subjects each. Group 1 comprised of subjects having root caries, Group 2 comprised of subjects having class 2 malocclusion and Group 3 comprised of subjects having complete edentulism. There were 21 males and 9 males in Group 1. There were 16 males and 14 males in Group 2. There were 15 males and 15 females in Group 3. Overall, there were 52 males and 38 females in this study. Root caries was treated apicoectomy. Class 2 malocclusion was managed with myofunctional appliances such as Twin Block Appliance, Jasper Jumper Appliance, and Herbst Appliance. Complete dentures had been fabricated for subjects having complete edentulism.

Conclusion: The prevalence of root caries, class 2 malocclusion and edentulism in this study was equal, i.e. 33.33%. Root caries was treated apicoectomy. Class 2 malocclusion was managed with myofunctional appliances such as Twin Block Appliance, Jasper Jumper Appliance, and Herbst Appliance. Complete dentures had been fabricated for subjects having complete edentulism.

Keywords: Root caries, Edentulism, Malocclusion, Prevalence, Treatment

Introduction

A global demographic transformation is currently taking place, characterized by a rapid increase in the proportion of older individuals compared to other age cohorts. Currently, there are approximately 600 million individuals aged 60 and above, a figure projected to double by 2025. By the year 2050, this number is expected to reach 2 billion, with 80% residing in developing nations. In India, the elderly population has expanded significantly, from 12.1 million in 1901 to around 77 million in 2001. Official projections indicate that this figure will rise to approximately 140 million by 2021.[1]

Such demographic shifts present substantial challenges for health and social policy planners, particularly as the patterns of disease are likely to evolve concurrently. The increase in life expectancy, coupled with advancements in oral health, suggests that many individuals will maintain some or all of their natural teeth well into their later years. However, on a global scale, there is a concerning prevalence of poor oral health, as evidenced by high rates of dental caries affecting both coronal and root surfaces, as well as significant occurrences of periodontal disease among older adults in recent years.[1]

This study was conducted to assess the prevalence of root caries, class 2 malocclusion and edentulism subjects of a known population and its management with apicoectomy, myofunctional appliances and complete denture, respectively.

Material and methods

This study was conducted to assess the prevalence of root caries, class 2 malocclusion and edentulism subjects of a known population and its management with apicoectomy, myofunctional appliances and complete denture, respectively. The study comprised of 100 subjects. The subjects had been informed about the procedure and had been asked for consent. 10 out of 100 subjects did not give consent and hence, had been excluded from the study. overall, 90 subjects had been included in the study. All the subjects had undergone oral clinical examination. The prevalence of root caries, class 2 malocclusion and edentulism had been assessed. The findings had been tabulated. Statistical analysis had been conducted using SPSS software.

Results

Table 1: The prevalence of root caries, class 2 malocclusion and edentulism

Groups	Number of subjects	Percentage
Group 1 (Root Caries)	30	33.33
Group 2 (Class 2 Malocclusion)	30	33.33
Group 3 (Complete edentulism)	30	33.33
Total	90	100

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Table 2: Gender-wise distribution of subjects.

Groups	Number of males	Number of females	Total
Group 1 (Root Caries)	21	09	30
Group 2 (Class 2 Malocclusion)	16	14	30
Group 3 (Complete edentulism)	15	15	30
Total	52	38	90

There were 21 males and 9 males in Group 1. There were 16 males and 14 males in Group 2. There were 15 males and 15 females in Group 3. Overall, there were 52 males and 38 females in this study.

Table 3: Management of root caries, class 2 malocclusion and edentulism.

Groups	Treatment
Group 1 (Root Caries)	Apicoectomy
Group 2 (Class 2 Malocclusion)	Myofunctional appliances
Group 3 (Complete edentulism)	Complete denture

Root caries was treated apicoectomy. Class 2 malocclusion was managed with myofunctional appliances such as Twin Block Appliance, Jasper Jumper Appliance, and Herbst Appliance. Complete dentures had been fabricated for subjects having complete edentulism.

Discussion

A global demographic transformation is currently taking place, characterized by a rapid increase in the proportion of older individuals compared to other age cohorts. Currently, there are approximately 600 million individuals aged 60 and above, a figure projected to double by 2025. By the year 2050, this number is expected to reach 2 billion, with 80% residing in developing nations. In India, the elderly population has expanded significantly, from 12.1 million in 1901 to around 77 million in 2001. Official projections indicate that this figure will rise to approximately 140 million by 2021. Such demographic shifts present substantial challenges for health and social policy planners, particularly as the patterns of disease are likely to evolve concurrently. The increase in life expectancy, coupled with advancements in oral health, suggests that many individuals will maintain some or all of their natural teeth well into their later years. However, on a global scale, there is a concerning prevalence of poor oral health, as evidenced by high rates of dental caries affecting both coronal and root surfaces, as well as significant occurrences of periodontal disease among older adults in recent years.[2,3]

This study was conducted to assess the prevalence of root caries, class 2 malocclusion and edentulism subjects of a known population and its management with apicoectomy, myofunctional appliances and complete denture, respectively.

Shetty J et al (2023)[4] evaluated the pooled prevalence of root caries among Indian population through systematic review and meta-analysis. The study protocol adhered to the Preferred Reporting Items for Systematic Review and Meta-Analysis guidelines and was registered in PROSPERO (CRD42022367365). Research articles published in English language till July 2022 were evaluated with the use of databases like PubMed, Science Direct, Google Scholar, Cochrane, and Scopus and employed standard Boolean operators. The search turned up a total of 194 articles; however, only 14 of those matched the requirements for inclusion and were used to compile the meta-analysis. MedCalc® Statistical Software version 20.2 was used to determine the pooled estimates. Using the random effect model, the analysis was carried out. By estimating the heterogeneity using Higgins' I^2 statistics, the extent and importance of differences between the chosen studies were ascertained. Publication bias was assessed using the funnel plot and Egger's test. The random effects model yielded a pooled prevalence of 27.617 (95% CI = 17.422–39.154). Three out of ten persons in India may be affected by root

caries, which is a serious health issue. To enhance the quality of life for the aged population, oral health policies and preventive actions should concentrate on this issue.

Balina S et al (2023)[5] The aim of this study is to evaluate the prevalence and distribution of malocclusion among the coastal Andhra Pradesh population in south India. The present study has a retrospective cross-sectional study design done on orthodontic records of patients who attended the Department of Orthodontics and Dentofacial Orthopedics at Lenora Institute of Dental Sciences and Hospital, Rajamahendravaram, India. Angle's classification and Dewey's modification were used to assess the distribution and pattern of malocclusion in patients. Statistical analysis was done using Chi-square test. The distribution of Angle's Class I malocclusion (67%) was more common than Angle's Class II malocclusion (30.1%) and Angle's Class III malocclusion (2.1%). The distribution of Class II division 1 was 23.2%, whereas Class II division 2 was 2.1% and Class II subdivision was 5.6%. Gender distribution according to Angle's classification exhibited a statistically significant difference (p-value < 0.001). Dewey's Class I type 2 was identified as maximum with 43.6% but no statistically significant gender distribution was reported. Angle's class I malocclusion was more prevalent with a distribution of 67%, followed by Class II malocclusion (30.1%) and Class III malocclusion (2.1%). A significant number of female patients were reported with Class I and Class II malocclusion whereas Class III malocclusion was predominately seen in males. It was noticed that, among all the malocclusions, Dewey's Class I type 2 was observed to be maximum but no significant gender distribution was observed.

Conclusion

The prevalence of root caries, class 2 malocclusion and edentulism in this study was equal, i.e. 33.33%. Root caries was treated apicoectomy. Class 2 malocclusion was managed with myofunctional appliances such as Twin Block Appliance, Jasper Jumper Appliance, and Herbst Appliance. Complete dentures had been fabricated for subjects having complete edentulism.

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