ORIGINAL RESEARCH

Prevalence of root canal treatment and extraction of extremely carious tooth in a known population

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ABSTRACT

Background: This study was conducted to assess the prevalence of root canal treatment and extraction of extremely carious tooth in a known population. **Material and methods:** This study comprised of 100 subjects aged between 25-50 years. The mean age of the subjects was 35.2 years. The subjects had been informed about the procedure and were asked to give consent. Those who were willing to participate and give consent were included in the study whereas those who didn't want to give consent and didn't want to participate had been excluded. Intraoral examination was carried out in each individual. It was seen that 50 subjects had grossly carious teeth while 50 subjects had good oral health and hence, the subjects were divided into two groups namely the control group (group 1) and caries group (group 2). Treatment plan was different for different kind of teeth. The teeth in which almost no crown was left had been chosen for extraction. The teeth in which crown structure was present had been selected for root canal treatment. The number of subjects who underwent root canal treatment and those who underwent extraction had been noted. Statistical analysis was conducted using SPSS software. **Results**: In group 1 there were 50 controls and in group 2, 50 subjects had grossly carious teeth. 26 subjects belonged to the age group of 25-30 years, 23 subjects belonged to the age group of 31-35 years, 19 subjects belonged to the age group of 36-40 years, 18 subjects belonged to the age group of 41-45 years and 14 subjects belonged to the age group of 46-50 years. Among 11 (22%) subjects, extraction was carried out because in the teeth of these 11 subjects, the crown structure was completely absent and only root stumps were evident and root canal treatment could not be conducted, while in 39 (78%) subjects, root canal treatment was conducted because a good amount of crown structure had not been damaged and the subjects were willing to get the tooth conserved rather than getting it extracted. Hence, root canal treatment was conducted in these 39 subjects. **Conclusion**: In this study it was seen that in most of the cases, root canal treatment was done while extraction was done in lesser number of cases.

Keywords: RCT, extraction, prevalence

INTRODUCTION

Management of dental caries has changed significantly in recent years.[1-3] The most contemporary practical approaches are based on early caries detection and prevention. They are also built on making a diagnosis based on risk indicators and risk factor assessment.[1-4]The new management approaches aim to preserve healthy tissue, as proposed in minimally invasive dentistry.[1,2,5]

This aims to achieve several goals, such as the implementation of a preventive philosophy, individualised risk assessments for patients, early detection of carious lesions, and remineralization of the non-cavitated lesion.[2,3]

Restorative procedures are damaging to tooth tissue and may endanger the tooth in the long term when it enters the restoration-re-restoration cycle.[4] Therefore, when restorative intervention is needed, the procedure used should be as minimally invasive as possible.[5] This includes repairing, refurbishing, or polishing rather than replacing defective restorations.[6,7]

Nevertheless, when the pulp is exposed by caries, it can be managed in a more conservative way than that previously used. This includes using vital pulp treatment (VPT) such as partial or complete pulpotomy instead of pulpectomy.[8]

This study was conducted to assess the prevalence of root canal treatment and extraction of extremely carious tooth in a known population.

MATERIAL AND METHODS

This study comprised of 100 subjects aged between 25-50 years. The mean age of the subjects was 35.2 years. The subjects had been informed about the

procedure and were asked to give consent. Intraoral examination was carried out in each individual. It was seen that 50 subjects had grossly carious teeth while 50 subjects had good oral health and hence, the subjects were divided into two groups namely the control group (group 1) and caries group (group 2).

Inclusion criteria: The subjects who gave consent to participate in the study had been included. The subjects who did not receive any dental treatment for carious teeth had been included in the study.

Exclusion criteria: The subjects who did not give consent had been excluded from the study. The subjects who already received treatment for carious teeth had been excluded from the study.

Criterial for selection of treatment plan: The teeth in which almost no crown was left and only root stumps were evidenthad been chosen for extraction. The teeth in which crown structure was present had been selected for root canal treatment.

The number of subjects who underwent root canal treatment and those who underwent extraction had been noted. Statistical analysis was conducted using SPSS software.

RESULTS

Table 1: Group wise distribution of subjects

Groups	Number of subjects	Percentage
Group 1 (controls)	50	50%
Group 2 (caries)	50	50%
Total	100	100%

In group 1 there were 50 controls and in group 2, 50 subjects had grossly carious teeth.

Table 2: Age-wise distribution of subjects

Age group	Number of subjects
25-30 years	26
31-35 years	23
36-40 years	19
41-45 years	18
46-50 years	14

26 subjects belonged to the age group of 25-30 years, 23 subjects belonged to the age group of 31-35 years, 19 subjects belonged to the age group of 36-40 years, 18 subjects belonged to the age group of 41-45 years and 14 subjects belonged to the age group of 46-50 years.

Table 3: Treatment plan for caries

Treatment plan	Number of cases (n=50)	Percentage
Extraction	11	22%
Root canal treatment	39	78%
Total	50	100%

Among 11 (22%) subjects, extraction was carried out because in the teeth of these 11 subjects, the crown structure was completely absent and root canal treatment could not be conducted, while in 39 (78%) subjects, root canal treatment was conducted because a good amount of crown structure had not been damaged and the subjects were willing to get the tooth conserved rather than getting it extracted. Hence, root canal treatment was conducted in these 39 subjects.

DISCUSSION

Out of all the treatment modalities performed by dentists, dental extractions are common.[9] Tooth extraction is indicated in cases such as chronic periodontal disease, periapical or periodontal abscesses, non-restorable caries, root stumps, fractured teeth, and failed root canal treatments with the persistence of periapical cysts or granulomas, impacted teeth, or to facilitate orthodontic or prosthodontic rehabilitation.[10,11] The consequence of routine tooth extraction could lead to dentoalveolar diseases, which can cause tooth loss.[12]

There are several reasons to extract the tooth such as root caries, pulpal pathology or instances where endodontic treatment cannot be conducted or where the endodontic treatment fails.[13,14]

This study was conducted to assess the prevalence of root canal treatment and extraction of extremely carious tooth in a known population.

In group 1 there were 50 controls and in group 2, 50 subjects had grossly carious teeth. 26 subjects belonged to the age group of 25-30 years, 23 subjects belonged to the age group of 31-35 years, 19 subjects belonged to the age group of 36-40 years, 18 subjects belonged to the age group of 41-45 years and 14 subjects belonged to the age group of 46-50 years. Among 11 (22%) subjects, extraction was carried out because in the teeth of these 11 subjects, the crown structure was completely absent and root canal treatment could not be conducted, while in 39 (78%) subjects, root canal treatment was conducted because a good amount of crown structure had not been damaged and the subjects were willing to get the tooth conserved rather than getting it extracted. Hence, root canal treatment was conducted in these 39 subjects.

Pandey P et al[15]evaluated the pooled prevalence of dental caries among Indian population through systematic review and meta-analysis.A keyword search was conducted in PubMed, Science Direct, Google Scholar, Cochrane, and Scopus databases using relevant key words to extract the data pertaining to dental caries in Indian population. The search criteria included manuscripts published in English language from March 2009 to March 2019 and employed standard Boolean operators. The studies which met the inclusion criteria were independently reviewed by two researchers and their quality was assessed by the Newcastle–Ottawa Scale. The overall prevalence was deduced using the random effects model with prime focus given to the site of anatomical origin. R software version 3.5.2. was used for statistical analysis.Post screening, out of the 253

articles identified, 70 met the inclusion criteria and were used to generate the meta-analysis. Among them, only few studies investigated the prevalence of root caries (n = 1). Overall prevalence of dental caries was 54.16% (CI: 0.4966–0.5866), whereas age-specific prevalence was 62% in patients above 18 years and 52% among 3–18 years of age (P < 0.0001). Maximum overall prevalence was noted in mixed dentition (58%). Region wise prevalence was more in western India (72%). Use of decayed, missed, and filled teeth as diagnostic criteria for early childhood caries was only 29%.Besides an overall prevalence of 54.16%, there exists a remarkable variation in dental caries prevalence rates as per age, diagnostic criteria, dentition, and geographical region. Furthermore, research should be focused on the prevalence of anatomical site specific caries as well.

CONCLUSION

In this study it was seen that in most of the cases, root canal treatment was done while extraction was done in lesser number of cases.

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