



Epidemiology of Periodontal Diseases: A Systematic Review

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Abstract

Background: Various epidemiologic studies suggest a reduction of periodontal diseases in the 18 to 65 year age group. However, so far, no systematic review has evaluated the epidemiology of periodontal diseases. The objective of this systematic review is to analyse the epidemiology of periodontal diseases as presented in various publications.

Materials and Methods: An electronic search was carried out on PubMed, Cochrane Databases and Google Scholar in November 2019. Ten observational studies that reported on epidemiology of periodontal diseases were found to meet the inclusion criteria.

Results: Of the ten potentially relevant publications, two were found to report on the epidemiology of periodontal diseases while the rest focussed on biological mechanisms and disease severity.

Conclusion: Periodontal disease has a variable epidemiology, with an increased risk to people who are older 65 years and reduced risk for the 18 to 65 year age group.

Keywords: Epidemiology; Periodontal Diseases

Introduction

The most prevalent periodontal disease is gingivitis, which is characterised by inflammation of the gingiva with change in size and consistency [1]. When treated early, gingivitis is reversible but when not treated it progresses to periodontitis, which is irreversible [2-4].

The primary aetiology of periodontal diseases is microbial although the course and severity depends on environmental and genetic factors [5]. The Risk factors associated with periodontal diseases are tobacco consumption, age, socioeconomic status and geographical origin [1]. An association between human T-cell leukaemia virus 1 (HTLV-1) has been established and reported. This was due to hematopoietic activity in elderly participants [6].

World over large descriptive epidemiologic studies have been carried out on the severity of gingivitis and periodontitis [7]. The results from the analyses of such studies have given indications on aetiology, prevalence and the natural history of periodontal diseases. However the epidemiologic studies have failed to give “an accurate picture of the site-specific prevalence without losing the identity of the person as the experimental unit” [7].

It has been noted that with age, prevalence of periodontal pocketing increases with severe periodontitis affecting 10 - 15% of the population. For instance, in the United Kingdom, the prevalence of periodontal disease increased with age, such that from age 55 and over, at least 75% of the population had a periodontal pocket or attachment loss of at least 4 mm at one or more sites [8]. This is also the case in Latin American countries [1].

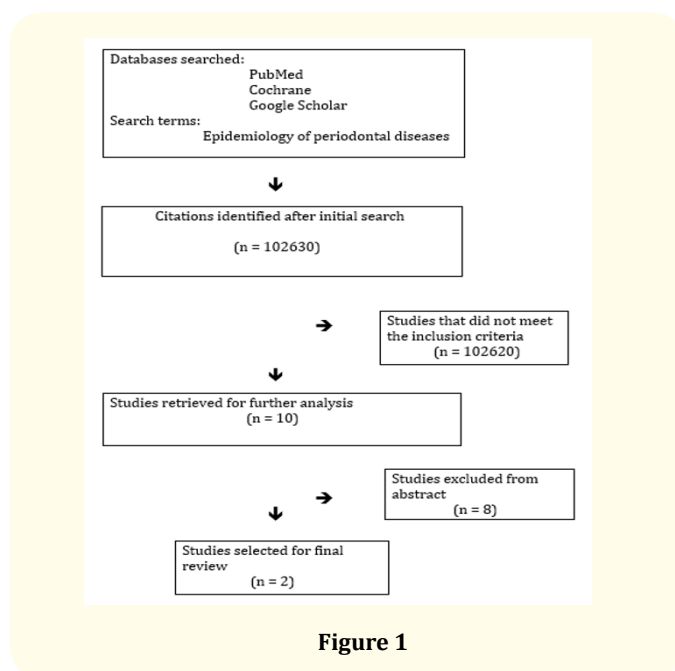
In a longitudinal study performed in New York State in 1994, it was identified that individuals were not equally at risk of developing periodontal disease [8]. Most epidemiologic data suggest a reduction in periodontitis for 18 - 65 year old individuals, which seem to imply that attention should be given to the disease in the 65 -year-old-plus population at the detriment of the 18 - 65 year old groups [7] especially adolescents who have been poorly characterized [1].

Very few studies reported on the epidemiology of periodontal diseases. Other publications reported controversy and ambiguity on the susceptibility of chronic or aggressive periodontitis and the association with interleukin-10 rs1800872 [3]. A meta-analysis supported the association between *Helicobacter pylori* and periodontal diseases. However, it remained controversial since no meta-analysis had been conducted to establish the association [9]. It is for this reason that this review attempts to assess how the epidemiology of various periodontal diseases was reported in various publications.

Methodology

An electronic search for literature was done from PubMed, Cochrane databases and Google Scholar in November 2019. Filters such as peer-review, free full text, between 2015 and 2019, with the best match was applied. Restriction was done to include articles in human subjects and written in English.

The flowchart below summaries the findings



Results

The results yielded ten publications; three systematic reviews, two meta-analysis, two cross-sectional studies and three critical reviews, one of which was found to be most relevant.

The systematic reviews from Cochrane database did not evaluate randomised controlled trials because of problems with the study designs. They reported very low evidence due to various factors.

Namely:

- That supportive periodontal therapy (SPT) performed by general dentists under specialised prescription was effective as specialised treatment performed by Periodontists [10].
- The treatment of periodontitis for the management of cardiovascular disease [11].
- The treatment of localised and multiple recession-type defects for root coverage procedures [12].

Discussion

Numerous periodontal indices [13] have been developed to measure the primary clinical features such as “the presence and amount of dental plaque and calculus, inflammation of the gingivae, presence and depth of periodontal pockets, attachment loss and mobility of teeth” [8]. With this in mind, it is no wonder that there is lack of consensus on the definition of periodontal disease¹ and the epidemiology of these diseases is rarely measured and if so, it appears to be varied.

We initially expected to find many publications on the epidemiology of periodontal diseases. However this was not the case. This would be attributed to the fact that proportions of periodontitis vary according to methodology and diagnostic criteria used. This review has analysed and highlighted the fact that epidemiology of periodontal disease is rarely reported. Hence, more epidemiological studies on periodontal disease should be conducted with country and regional specifics.

Conclusion

Epidemiology of periodontal disease is generally variable in the whole population. However, people with increased risk are 65 year old with an implication that the 18 to 65 years have a reduced risk.

Declarations

Ethical approval

No ethical approval was needed for this study.

Consent for publication

Given consent for publication.

Availability of data and material

All articles are available on PubMed, Cochrane and Google Scholar.

Competing Interests

There are no competing interests.

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Not applicable.

Authors' contribution

Drs Edith K Maraga and Gladys M Akama carried out the study.

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Not applicable.

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