EBD

COMMENT

Periodontics

Does periodontitis affect respiratory health?

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A COMMENTARY ON
Molina A, Huck O, Herrera D, Montero E.
The association between respiratory diseases and periodontitis: A systematic review and meta-analysis. *J Clin Periodontol* 2023; https://doi.org/10.1111/jcpe.13767.

PRACTICE POINT

- Clinicians should continue to manage patients holistically and should be aware that periodontitis may adversely affect respiratory health.

DATA SOURCES: PubMed, Scopus and Cochrane Library were systematically searched for studies published up to October 2021.
STUDY SELECTION: Two separate search strategies were employed: (1) In adults with periodontitis, what is the prevalence or incidence of respiratory diseases compared to healthy or gingivitis adults in cross-sectional, cohort or case -control studies. (2) In adults with periodontitis and respiratory disease, what are the effects of periodontal therapy compared to no or minimal therapy in clinical trials (randomised and non-randomised)? Respiratory diseases were defined as chronic obstructive pulmonary disease (COPD), obstructive sleep apnoea (OSA), asthma, COVID-19, and community acquire pneumonia (CAP). Exclusion criteria included non-English studies, individuals with severe systemic comorbidities, less than 12 months follow up, and a sample size less than 10 individuals.
DATA EXTRACTION AND SYNTHESIS: Two reviewers independently screened the titles, abstracts, and selected manuscripts against the inclusion criteria. Disagreement was solved by consulting a third reviewer. Studies were classified according to the respiratory diseases investigated. Quality assessment was performed using various tools. Qualitative assessment was performed. Studies with sufficient data were included in meta-analyses. Heterogeneity was assessed using the Q test and I^2 index. Fixed and random effects models were used. Effect sizes were presented as odds-ratios, relative risks, and hazard ratios.
RESULTS: 75 studies were included. Meta-analyses revealed statistically significant positive associations of periodontitis with COPD and OSA ($p < 0.001$) however no association for asthma. Four studies showed positive effects of periodontal treatment on COPD, asthma, and CAP.

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GRADE Rating:

COMMENTARY

Over the last few decades increasing research has been directed at establishing whether the relationship between periodontitis and systemic diseases (such as diabetes mellitus) is unidirectional or bidirectional i.e. periodontitis can independently negatively affect systemic health[1]. Contemporary attitudes have shifted, and it is now understood that diabetes mellitus is not only a significant risk factor for developing periodontitis and worse treatment outcomes, but that poorly controlled periodontitis may impair systemic glycaemic control and that periodontal therapy may help to improve glycaemic control, comparable to a second line pharmacological agent[2]. There is biological evidence to support the theory that periodontitis may adversely affect respiratory health however there is little evidence to support the strength of such an association or the effects of periodontal therapy on respiratory diseases[3].

From a biological perspective, two main theories have been suggested to explain the hypothesised association: the micro-aspiration of oral microbes into the respiratory apparatus and the systemic effects of pro-inflammatory mediators produced in the periodontium may affect the respiratory system increasing the likelihood of developing inflammatory respiratory conditions or worsening progression of existing diseases[4].

This study aimed to investigate the epidemiological evidence for the association between periodontitis and respiratory diseases prevalence in addition to the clinical trial evidence of the effects of periodontal therapy on respiratory disease outcomes.

This study was commissioned by the European Federation of Periodontology to be used in a joint workshop with the World Organisation of Family Doctors. This aimed to improve ties between physicians and dentists in an attempt to reduce the global burden of noncommunicable diseases. The outcomes of this workshop have also been published in the same journal[5].

Whilst the findings of this study suggest periodontitis may increase the incidence of certain respiratory diseases, caution must be taken when interpreting such epidemiological evidence to avoid describing this as a relationship – rather an association. Limited research was found investigating the effects of periodontal therapy on respiratory disease outcomes.

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This systematic review was commendably well-designed and executed however was affected by similar shortcomings to most research in this area notably the lack of interventional studies and heterogeneity of case definition. Nonetheless, its findings should be recognised, and healthcare professionals should be aware of the possibility of periodontitis negatively affecting respiratory health and act accordingly by encouraging individuals with either periodontitis or respiratory diseases to optimise their oral health. This is perhaps more important for individuals in an in-patient setting whose systemic comorbidities are severe and whose oral health is often a low priority.

Whilst the findings of this study are unlikely to transform our understanding, it provides dental care professionals a basis to liaise with their colleagues when managing periodontitis patients with systemic comorbidities and may allow them to better inform their patients about its risks and thus motivate them.

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COMPETING INTERESTS

The author declares no competing interests.

ADDITIONAL INFORMATION

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