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Chronic obstructive pulmonary disease

BACKGROUND

Patients who have chronic obstructive pulmonary disease (COPD) or asthma experience air-flow limitation and are at risk for infectious lung diseases secondary to the aspiration of microorganisms if their periodontal status is compromised. Most patients with COPD or asthma undergo inhalation therapy, which uses long-acting β-2 agonists, anticholinergic bronchodilators, inhaled corticosteroids, and sodium cromoglycate alone or in combination. Inhaled drugs can cause subsurface enamel demineralization and reduce the oral cavity's pH. In addition, asthmatic patients often have gastroesophageal reflux disease and reduced salivary flow, which can also contribute to poor oral health. Studies of the effects of inhalation therapy on oral health have focused on children, so the need arose for an investigation into the possible effects of this therapy on adults' oral health.

METHODS

The 170 subjects ranged in age from 20 to 45 years and were suffering from chronic respiratory diseases and receiving inhalation treatment for at least 6 months. A matching control group was made up of 170 people coming to the same hospital. The control group was recruited from waiting areas and outpatient clinics. They suffered no systemic diseases and were not taking any antiasthmatic medications or other medications that could alter oral parameters. The data collection included the patients' dental status, as indicated by the decayed-missing-filled tooth (DMFT) scores; oral hygiene status, as indicated by the simplified oral hygiene index (OHI-S); periodontal status; and the presence of candida colonization, as determined by an estimation of colony-forming units (CFUs) of *Candida* species.

RESULTS

Nearly all of the case subjects received corticosteroid treatment with a long-acting β agonist twice daily via inhalers. Their oral hygiene regimen usually consisted of using a toothbrush and tooth paste (fluoridated or nonfluoridated).

The DMFT scores, OHI-S scores, calculus and plaque component scores of the periodontal disease index (PDI), and CFU/ml measures of candida species were significantly higher among the patients than among the control group. Patients had significantly lower gingival-periodontal component scores than those in the control group. When duration of medication was considered, the DMFT scores and CFU/ml of candida species were higher among those who had received COPD treatment for more than 5 years than among those whose medication history was less than 5 years.

DISCUSSION

This study was designed to evaluate the effect of COPD medication used for at least 6 months on the oral health of adult patients. COPD patients had significantly higher caries levels, oral hygiene status scores, calculus levels, and plaque presence than control individuals. Periodontal disease severity, however, was less in patients than in control individuals. Duration of antiasthmatic medication may contribute to the differences, with those who were on medication more than 5 years having significantly higher DMFT scores and candida colonization than those who were on medication for less than 5 years.

Clinical Significance

This cross-sectional study does not address the multiple local and systemic factors, some of which are unknown, that might influence oral health. It's possible that factors other than those being studied may have influenced the findings. Further study is needed, however, regarding the effect of COPD medication on adults' oral health status. In addition, oral hygiene protocols need to be developed to ensure that patients receiving long-term antiasthmatic therapy can maintain good oral health. Finally, the possibility that corticosteroids may offer a protective role against periodontal disease should be further investigated to delineate exactly how this works. Many questions remain unanswered with respect to the effects of COPD therapy on oral health in adults.

Raj R, Manu MK, Prakash PY, et al: The effect of 6 months or longer duration of chronic obstructive respiratory disease medication on the oral health parameters of adults. *Spec Care Dentist* 38:133-138, 2018

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