

Association of Recurrent Respiratory Infections with Poor Dental Hygiene

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Abstract: Background and Objectives: It has been recognized that the association between recurrent respiratory infections and poor dental hygiene are potentially important because of the high occurrence of dental infections. Dental infections are also a common occurrence among children. We conducted a study to assess the status of poor dental hygiene as a causative factor for recurrent respiratory infections among paediatric population.

Methods: This was a cross sectional study conducted in 100 children aged between 2 – 18 years, with history of recurrent respiratory infections. The patients were checked for presence of plaque using plaque disclosing agent. The patients were also examined for dental caries, gingivitis, tartar and extracted teeth.

Results: The percentage of children who had poor dental hygiene and history of recurrent respiratory infection was 87%. 85.7% of the children below 5 years had dental problems. The percentage of children with dental problems in the age group 6-10 years and >10 years was 87.5% and 88% respectively. Children with irregular brushing pattern had high incidence of dental problems compared to those with regular brushing pattern (P=0.04).

Conclusion: This study done in our hospital showed that there is an association between recurrent respiratory infections and poor dental hygiene. This study also indicated that people, community and health professionals should be educated and made aware of this possible association. The role of health professionals in educating patients about this association would be of positive implications.

Keywords: children; recurrent respiratory infection; dental hygiene; association

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I. Introduction

It has been recognized that the association between recurrent respiratory infections and poor dental hygiene are potentially important because of the high occurrence of dental infections. Recently, studies demonstrate an association of recurrent respiratory infection with poor dental hygiene. Bacteraemia, bacterial end toxins, cytokines and other inflammatory mediators could be playing a direct or indirect role (1). Bacterial respiratory infections are thought to be acquired by aspiration or inhalation of the fine droplets from the mouth and throat into the lungs. These droplets contain micro organisms that can breed and multiply within lungs causing damage (2). Poor dental hygiene includes dental plaque, caries, gingivitis etc that are very common among humans. They are induced by bacteria and bacterial products of dental plaque and are characterized by inflammatory response leading to tooth destruction (3).

Paediatric respiratory infections are one of the most common reasons for physician visits and hospitalization, and are associated with significant morbidity. Recurrent respiratory infections occur in children due to different reasons. Dental infections are also a common occurrence among children. Dental caries or plaque occur due to overgrowth of specific organisms that are part of normally occurring dental flora and related to respiratory infection. The aim of the present study was to evaluate the status of poor dental hygiene as a causative factor for recurrent respiratory infections among paediatric population.

II. Materials and Methods

This was a cross sectional study conducted in 100 children aged between 2 – 18, visiting the department of paediatrics of a tertiary care hospital, from November 2011 – October 2012. Children with history of recurrent respiratory infection were only included in the study. The patients were checked for presence of plaque using plaque disclosing agent. The patients were also examined for dental caries, gingivitis, tartar and extracted teeth. The details of the study were explained and informed consent was obtained from the guardian of children included in the study. Proforma was filled, which included details of children, their

anthropometric measurements, history of recurrent respiratory infection and examination findings. Children with allergic rhinitis and asthma were excluded from the study.

Statistical analysis was done SPSS 15.0. Chi square test, ANOVA, student's t test and f test were applied for various statistical evaluations.

III. Results

In this cross sectional study, we examined 100 children, from 2 to 18 years of age.

Table 1: Type of dental problems

Age	N	Percentage
Dental plaque	82	82%
Gingivitis	0	0%
Dental caries	57	57%

The percentage of children who had poor dental hygiene and history of recurrent respiratory infection was 87%. 85.7% of the children below 5 years had dental problems. The percentage of children with dental problems in the age group 6-10 years and >10 years was 87.5% and 88% respectively. Chi square test was not significant between the three age groups (P=0.96). Dental problems were more prevalent among male children compared to females (P=0.01). We could not observe any significant difference in the occurrence of dental problems among children belonging to different socioeconomic status or income (P=0.26 for both). Children with irregular brushing pattern had high incidence of dental problems compared to those with regular brushing pattern (P=0.04).

IV. Discussion

Systemic health has often been closely linked to the state of oral hygiene. Many systemic diseases and conditions have oral manifestations. Therefore, in the recent past, there has been greater concern in understanding the association of periodontal disease with many systemic conditions. Likewise, oral microbial infections may also affect one's general health status (4). Population based studies have indicated that oral hygiene is linked with diabetes, cardiovascular diseases, osteoporosis, adverse pregnancy outcomes and respiratory infections (5-7). Though poor dental hygiene is not responsible for history of recurrent respiratory infections, it could be one of the factors that may work as an adjunct factor with other major factors such as smoking, environmental pollution, viral infections and allergies to cause recurrent respiratory infections.

A study done among children in Turkey showed that here exists a relationship between dental caries and upper respiratory tract infection and this is in agreement with the results obtained from the present study (6). The above study also showed that recurrent respiratory infections occurred in children with dental caries. The future of dental practice will be dramatically altered if subsequent research confirms that periodontal disease is a risk factor for respiratory infection and that the initiation and progression of these infections can be reduced by good dental hygiene.

Dentists may be able to play a significant role in the prevention of respiratory infections by redoubling their efforts to prevent poor dental hygiene and arresting progression in patients who have pre-existing dental problems. Presently, the above discussion pointed out the potential impact of poor dental hygiene on recurrent respiratory infections. In future, additional rationale for dental hygiene may be taken to prevent untoward effects on respiratory health. It is appropriate to conclude that the maintenance of oral health should receive top most priority for leading a healthy life.

V. Conclusions

This study done in our hospital showed that there is an association between recurrent respiratory infections and poor dental hygiene. This study also indicated that people, community and health professionals should be educated and made aware of this possible association. The role of health professionals in educating patients about this association would be of positive implications.

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