

Awareness of Association between Periodontal Disease and Respiratory Disease among General Practitioners: A Survey

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Abstract:-

➤ Aim:

The purpose of this survey is to evaluate the awareness of association between periodontal disease and respiratory disease among dental practitioners.

➤ Methodology:

A questionnaire comprising of 24 questions was distributed among 100 dental practitioners. The practitioners were asked about the pathogens causing periodontal and respiratory disease, association between periodontal and respiratory diseases, periodontal symptoms and classic signs of respiratory disease, influence of smoking on periodontal disease and progression of periodontal diseases to respiratory diseases.

➤ Result:

The results obtained from the survey reveal that about 64% of the practitioners are aware of the association between the respiratory and periodontal diseases. A fraction of the practitioners were unaware of the mechanism of action of periodontal disease on respiratory disease and other periodontal markers.

➤ Conclusion:

It has been established that periodontal disease is an important marker for respiratory disease. The assessment of the general practitioners' knowledge about various aspects of the periodontal disease is necessary for early detection and subsequent intervention.

Keywords:- Respiratory Disease, Periodontal Disease, Pathogens, Plaque, Smoking.

I. INTRODUCTION

Respiratory diseases are the most common medical conditions in the world and may lead to significant number of deaths. Evidence suggests that oral disorders particularly periodontal disease may influence the force of respiratory infections like bacterial pneumonia and COPD. Respiratory infections are assumed to be associated with aspiration of oropharyngeal flora into the lower respiratory tract and failure of host defense mechanism to eliminate the contaminating bacteria, which then multiply to cause infection [1]. The oral cavity serves as a reservoir for respiratory pathogens, colonisation and subsequent nosocomial respiratory infections. The possible contribution of oral pathogens especially those present in gingival sulcus and periodontal pockets to various systemic conditions have been acknowledged for decades. Periodontal medicine is defined as the relationship between periodontal disease and systemic disease[2].

Awareness of the impact of periodontal health on respiratory diseases among general practitioners is essential in order to identify the periodontal factors contributing to the infection and for its subsequent treatment[3]. A large number of practitioners are not aware of the risk factors periodontal diseases poses on respiratory health which necessitates the need to evaluate the knowledge of general practitioners. Hence, this study was conducted with the need to assess the awareness of association between periodontal and respiratory diseases among general practitioners with 2-3 years of experience in general dentistry at Thai Moogambigai Dental College & Hospital.

II. MATERIALS AND METHODOLOGY

Survey questions were distributed to dental practitioners. A total of hundred questionnaire forms were distributed. 24 close-ended questions were framed with multiple choices for each question. The survey was conducted among dental practitioners in Thai Moogambigai dental college with a sample size of 100 practitioners[4]. The subjects were briefed about the study and informed consent was obtained from them. Ethical committee approval was obtained from the university. The questions were aimed at evaluating the knowledge of dental practitioners about the role of periodontal disease in initiation of respiratory disease[5].

III. RESULTS:

1. Did you know recent study shows periodontitis as one of the risk factor for respiratory diseases like pneumonia and COPD?

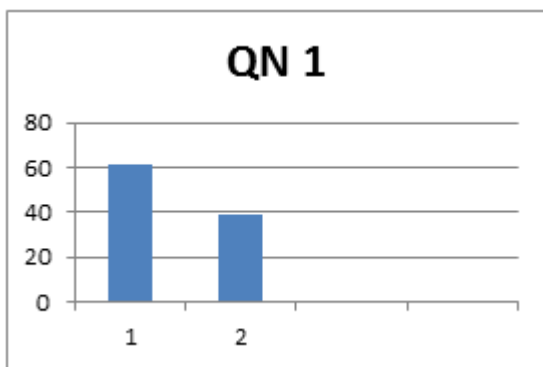


Fig 1

- 1. Yes
- 2. No

61% of dentists were aware that periodontitis is a risk factor for respiratory disease and the rest were unaware.

2. Did you know plaque is a reservoir for respiratory pathogens?

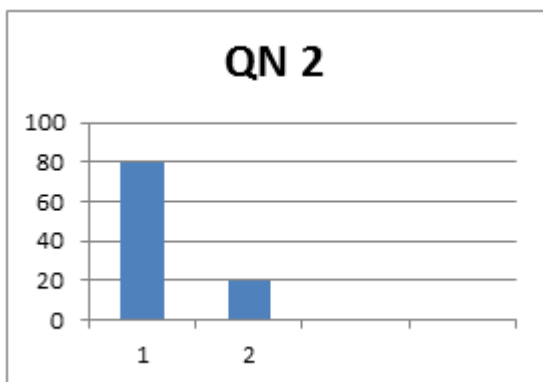


Fig 2

- 1. Yes
- 2. No

80% of practitioners knew that plaque is the reservoir for respiratory pathogens and the rest were unaware.

3. Are you aware of the oral pathogens that cause respiratory disease?

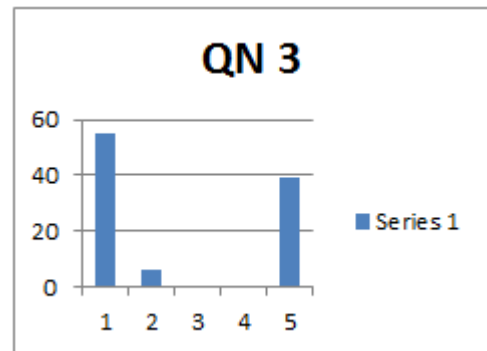


Fig 3

- 1. Bacteria
- 2. Virus
- 3. Fungi
- 4. Parasites
- 5. All the above

55% of dentists were aware that oral pathogens cause respiratory disease and the rest were unaware.

4. Do you know which bacteria cause respiratory disease?

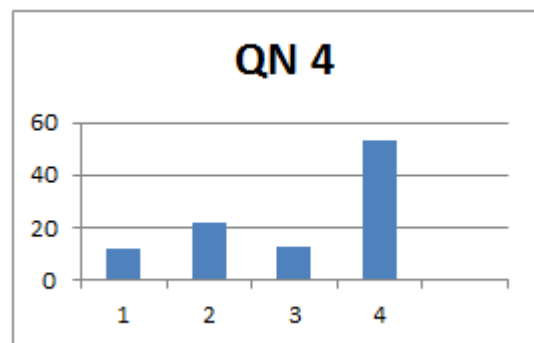


Fig 4

- 1. Porphyromonas gingivalis
- 2. Actinomyciticominas
- 3. Actinobacillus
- 4. All the above

53% of dentists were aware about which bacteria that cause respiratory disease and the rest were unaware about it.

5. Do you think that persons with periodontal disease are more likely to have respiratory disease?

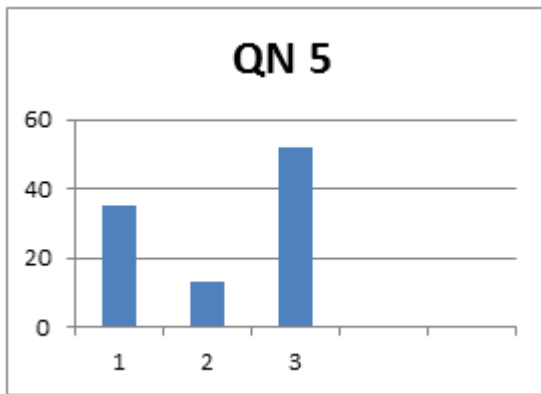


Fig 5

1. Yes
2. No
3. May be

52% of the practitioners answered that persons with periodontal disease are more likely to have respiratory disease.

6. Where are the causative agents present in oral cavity?

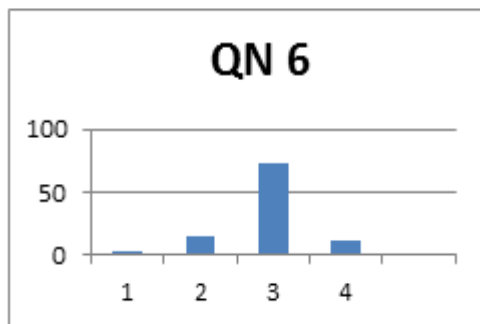


Fig 6

1. Gingival sulcus
2. Periodontal pockets
3. Both a & b
4. None of the above

73% of dentists were aware about where the causative agents present in oral cavity and the rest were unaware.

7. Oral colonization by respiratory pathogens is common in?

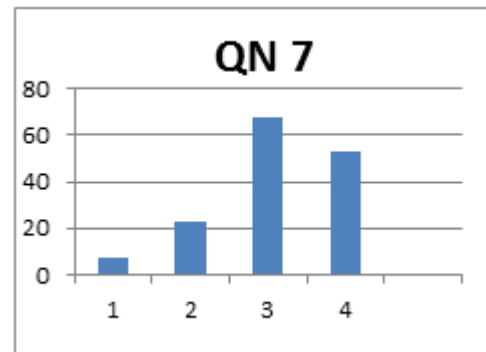


Fig 7

1. Patients in ICU
2. Medically compromised elders
3. Both a & b
4. None of the above

68% of the practitioners answered that oral colonization by respiratory pathogens is common in ICU patients and medically compromised elders.

8. Which group of people are affected more?

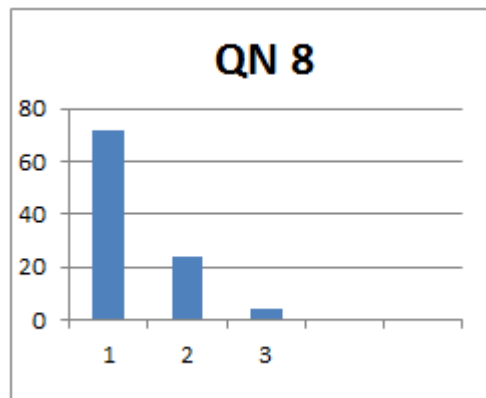


Fig 8

1. Chronic smokers and alcoholics male
2. Chronic smokers and alcoholics female
3. Non-smokers – male and female

72% of the practitioners were aware about which group of people affected more common and the rest were unaware about it.

9. How does periodontal disease pave way for respiratory disease?

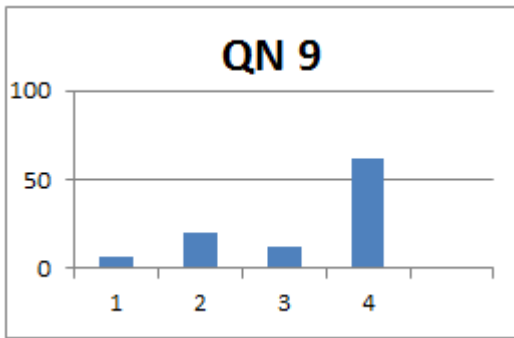


Fig 9

1. Modifications of mucosal surface by periodontal disease
2. Oral pathogens directly aspirated in to lungs
3. Destroy the salivary film that protects against pathogenic bacteria
4. All the above

62% of the practitioners answered correctly and the rest of practitioners were unaware about it

10. Patients with COPD have?

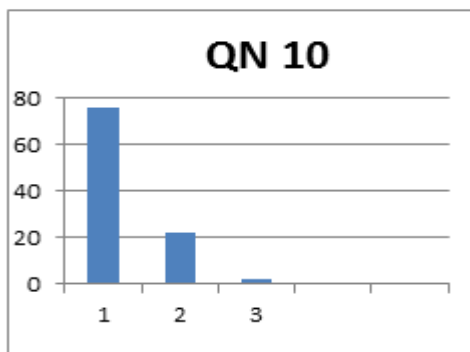


Fig 10

1. Increased CAL
2. Reduced CAL
3. No CAL

76% of the practitioners were aware about that patients with COPD have increased CAL and the rest were unaware.

11. Do you think more the severity of periodontal disease greater the association of COPD?

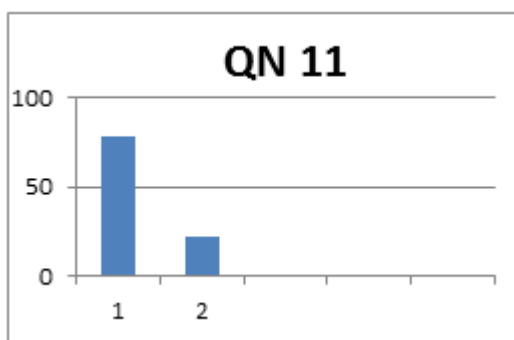


Fig 11

1. Yes
2. No

76% of the practitioners were aware about that more the severity of periodontal disease greater the association of COPD and the rest were unaware.

12. Do you think poor oral hygiene and periodontal attachment loss are independent risk factors of COPD?

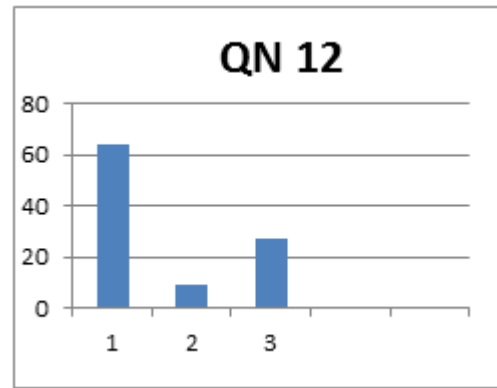


Fig 12

1. Yes
2. No
3. May be

64% of the practitioners were aware that poor oral hygiene and periodontal attachment loss are independent risk factors of COPD and the rest were unaware.

13. Patients with respiratory disease were found to have?

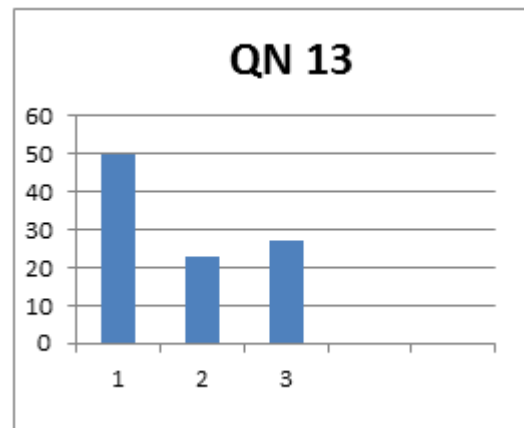


Fig 13

1. Increased GI then normal
2. Decreased GI then normal
3. Same GI depending on the condition of the gum

50% of the practitioners were aware that patient with respiratory disease were found to have increased GI then normal and the rest were unaware

14. What are the classic sings that are shown in the PDL if the patient have respiratory disease?

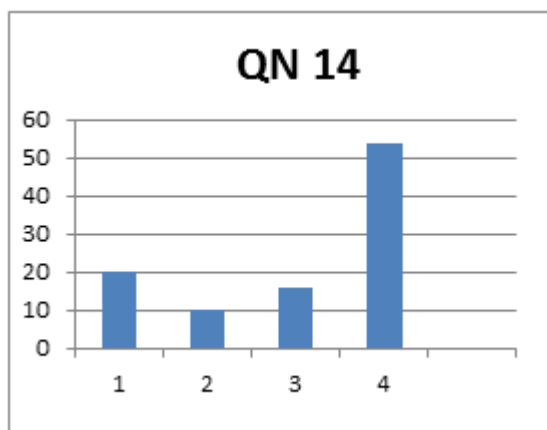


Fig 14

1. Formation of periodontal pocket
2. Calculus formation
3. Alteration of mucous surface by salivary enzyme
4. All the above

54% of the practitioners were aware about the classic signs of periodontal disease and the rest were unaware

15. What are the classic oral symptoms of respiratory disease?

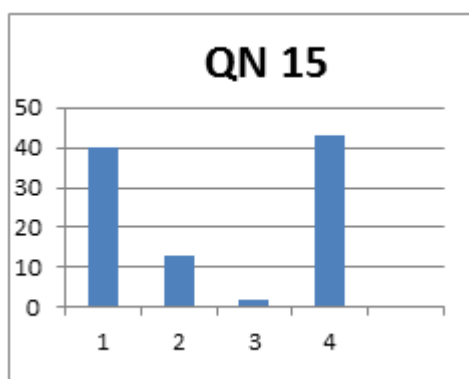


Fig 15

1. Halitosis
2. Gingival redness
3. Mobility
4. All the above

43% of the practitioners were aware about the classic oral symptoms of periodontal disease and the rest were unaware.

16. Do you think smoking is one of the common risk factor for periodontal and respiratory conditions?

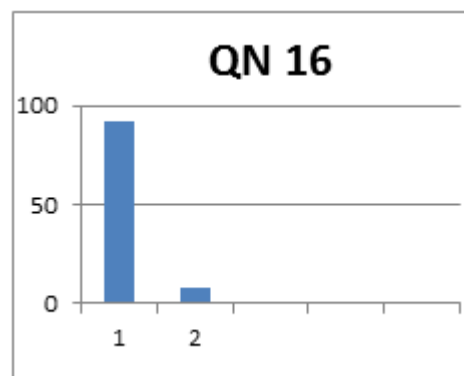


Fig 16

1. Yes
2. No

92% of the practitioners were aware that smoking is one of the common risk factor for periodontal and respiratory disease and the rest were unaware.

17. If yes,

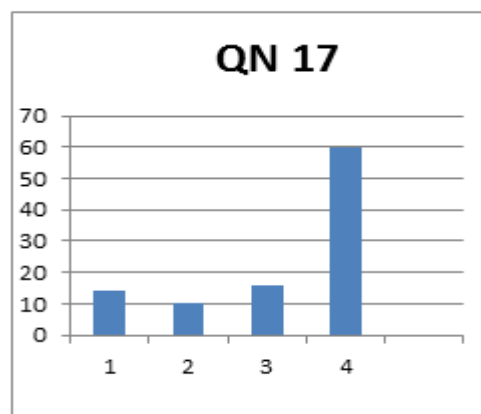


Fig 17

1. Compromises a mucocilliary barrier and phagocytic activity
2. Vasodilation
3. Reduces salivary secretion
4. All the above

14% of the practitioners only aware about that smoking compromises a mucocilliary barrier and phagocytic activity and the rest were unaware

18. How does alcohol intake act as a risk factor for pneumonia?

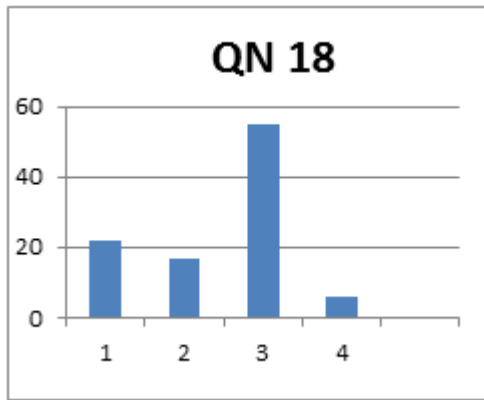


Fig 18

1. Adversely affects respiratory and immune system
2. Alters the mechanism of respiratory clearance
3. Both a and b
4. None of the above

55% of the practitioners were aware that alcohol intake acts as a risk factor for pneumonia and the rest were unaware.

19. What are the indices taken for gingival and periodontium to diagnose a respiratory disease?

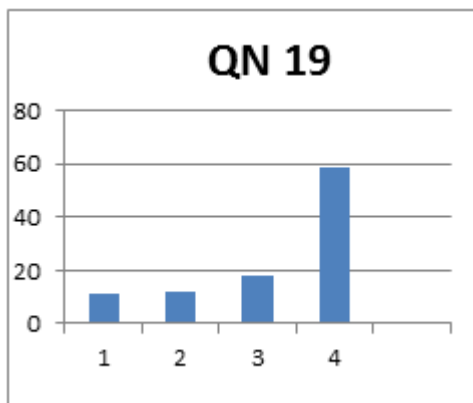


Fig 19

1. Gingival index
2. Papilla bleeding index
3. Periodontal index
4. All the above

59% of the practitioners were aware of the gingival and periodontal indices required to diagnose a respiratory disease.

20. Do you think periodontal status may serve as useful risk marker to identify persons at high risk for COPD?

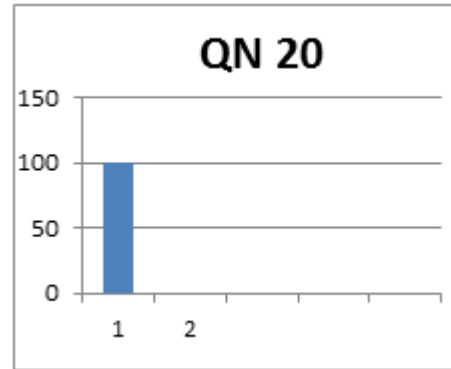


Fig 20

1. Yes
2. No

100% of the practitioners were aware about periodontal status may serve as useful risk marker to identify persons at high risk for COPD.

21. Do you think the risk of COPD will be reduced if we treat periodontal disease?

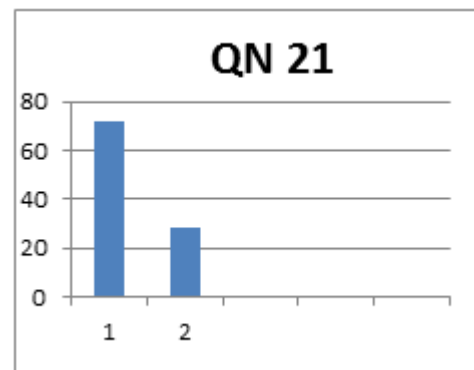


Fig 21

1. Yes
2. No

72% of the practitioners were aware that risk of COPD will be reduced if the periodontal disease is treated.

22. Do you know which pathogens that cause pneumonia?

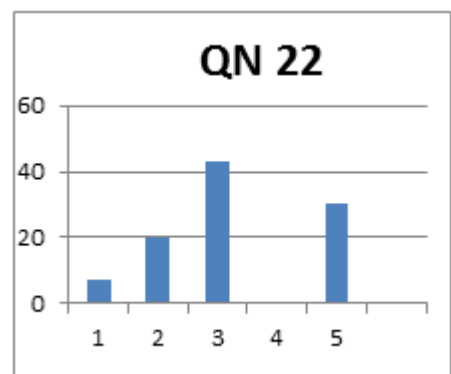


Fig 22

Fungi

1. Virus
2. Bacteria
3. Parasites
4. All the above

30% of the practitioners were aware that pathogens causing pneumonia and the rest were unaware.

23. Do you know the bacterial pneumonia causes colonization in oral cavity?

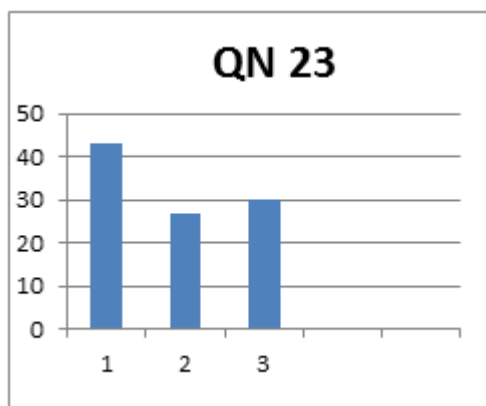


Fig 23

1. Yes
2. No
3. May be

43% of the practitioners were aware that bacterial pneumonia causes colonization in oral cavity and the rest were unaware.

24. With severity of COPD, periodontal index, attachment loss, bone loss and pocket depth?

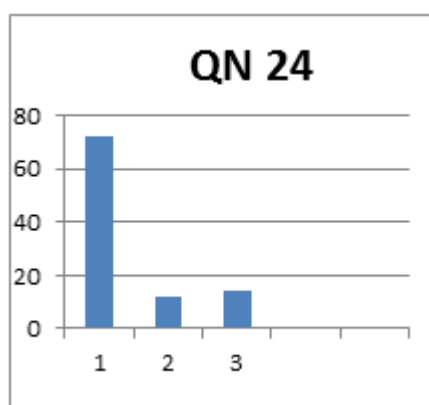


Fig 24

1. Increases
2. Decreases
3. Remains the same

72% of the practitioners were aware about during the severity of the COPD, periodontal index, attachment loss,

bone loss and pocket depth were increased and the rest were unaware.

IV. DISCUSSION

This survey was conducted to evaluate the awareness of association between periodontal and respiratory disease among general practitioners in Thai Moogambigai Dental College. A survey questionnaire comprising of 24 questions was circulated to evaluate the practitioners. Studies suggest that there is a growing need for dental practitioners to be aware of potential periodontal problems that may pave way for respiratory diseases like COPD, pneumonia and asthma[4]. It has been established that dental plaque acts a reservoir for respiratory pathogens. The practitioners were asked questions about the possible periodontal risk factors, signs and symptoms, oral pathogens and gingival and periodontal indices that bring about respiratory diseases in individuals with compromised periodontal health[5].

The results of the survey revealed that on an average about 64% of the practitioners that participated in the survey had knowledge about the periodontal factors that cause various respiratory diseases. All the participants were aware that periodontal status of patients serves as an important risk marker for respiratory diseases but only 62% of the practitioners knew the mechanism of action of periodontal markers in causing respiratory diseases[6]. It is important for the dentist and the physician to identify the route of progression of the periodontal disease to respiratory disease. Identifying changes in the periodontium and detecting presence of potential oral pathogens that can cause respiratory diseases like COPD and pneumonia can help in early intervention of the disease. Only 55% of the practitioners had knowledge of the oral pathogens that cause respiratory diseases and about 80% were aware that plaque acts as a reservoir for the pathogens. The oral pathogens that cause pneumonia and lung abscesses are Actinomyces Israeli, Capnocytophaga species, Eikenella corrodens, Prevotella intermedia, Porphyromonas gingivalis and Streptococcus constellatus[7].

54% of the practitioners were also aware of the periodontal signs and symptoms that may indicate presence of respiratory disorders. Formation of periodontal pocket, presence of calculus and alteration of mucous surface by salivary enzyme are some of the classic signs seen in patients that can aid in early detection for the dentist. Other oral symptoms are halitosis, gingival redness and tooth mobility. Patients with respiratory diseases often have increased Periodontal Index[PI] and Simplified Oral Hygiene Index[OHI-S] scores. About 92% of the practitioners knew that smoking is a risk factor for periodontal and respiratory disease but only 14% of the practitioners knew the mechanism of action of smoking on the periodontium[8]. Only 55% of the practitioners knew that alcohol intake acts as a risk factor for respiratory disease. It is important for the dentist to be aware of the possible implications of alcohol consumption on oral and respiratory health in order to make the patient aware of the possible complications. Practitioners should update themselves and should enrich their knowledge

and current concept which will enable them to identified and diagnose the etiology[9].

CONCLUSION

The survey was conducted to assess the knowledge of association between periodontal and respiratory disease among general practitioners[10]. The results of the survey revealed that about 64% of the general practitioners were aware of the various periodontal markers that contribute to respiratory disease but a fraction of the practitioners were unaware of the mechanism of action of periodontal disease in causing respiratory disease. Knowledge about various oral pathogens, variation of indices and classical signs and symptoms still requires to be improved to enhance early diagnosis and prevention of diseases like pneumonia , bronchial asthma and COPD.more continuing education programmes on periodontal influence on systemic disease would be very helpful in the long run to the dental practitioners.[11]

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