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Research Article

AWARENESS OF RELATIONSHIP BETWEEN PERIODONTAL DISEASES AND SYSTEMIC CONDITIONS AMONG MEDICAL PRACTITIONERS IN KASHMIR, INDIA - A CROSS-SECTIONAL SURVEY

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ABSTRACT

Background; Periodontal disease is a microbial disease with inflammatory mechanisms what are common with cardiovascular, respiratory diseases, premature delivery , preterm birth and diabetes mellitus. This study was conducted to assess this correlation and increase its knowledge and awareness among medical practitioners.

Aim; The aim of this study was to assess the awareness of medical practitioners about the association between the periodontal disease and systemic conditions.

Materials & methods; The study was conducted by distributing questionnaire among 160 medical practitioners. Among which 98 were males and 62 were females. 55 practitioners were having < 10 years of practicing experience, 66 with 10-20 years and 35 with >20 years of experience.

Conclusion; Most of the clinicians were not aware of the bi-directional relationship of periodontal disease and systemic conditions , so the proper mode of training and collaborative efforts are needed to ensure proper public health needs.

INTRODUCTION

Periodontal diseas is an infectious/inflammatory disease characterized by an amplifying cascade of biochemical and cellular events that ultimately lead to the destruction of the periodontal liga- ment and resorption of the surrounding bone.[1] Periodontal diseases are a group of lesions affecting the tissues surrounding and supporting the teeth in their sockets. These diseases are not a recent discovery. Paleopathological studies have indicated that diseases of the gums and loosening of teeth are as old as humanity.[2] Over 300 bacterial species are recognized as being present in the human oral cavity.[3] Remarkably, although living in close proximity to the highly vascularized gingival connective tissue and periodontal ligament, very few of these bacteria cause systemic infection in healthy individuals. Under select conditions, that may involve acquisition of certain species, combinations of species or less than optimal host defense, they can cause destructive inflammation.[4] Periodontal disease is an infectious disease process in which bacteria and their products interact with the junctional epithelium and penetrate into the underlying connective tissue. As the disease worsens, periodontal pockets deepen, the components of the extracellular matrix of the gingiva and periodontal ligament are destroyed and alveolar bone is resorbed.[5] As the periodontal disease and systemic diseases share the inflammation as their common key mechanisms and have the impact on progression of each other, this becomes important for the medical practioner to be

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be aware of association between periodontal disease and systemic conditions. This study was conducted to asses this awareness among medical practitioners for better interdiscipilinary treatment and better patient care.

MATERIALS&METHODS (EXPERIMENTAL SECTION)

A cross-sectional survey was designed to assess knowledge among medical practitioners regarding the relationship between systemic conditions and periodontal disease in Kashmir, India from July 2016 to June 2017. The study protocol was approved by the Ethical Review Committee of Government Dental College and Hospital Srinagar, Kashmir India. A list of medical practitioners was obtained from the Medical Council. The selection criteria included medical practioners who were in fulltime government practice. Retired practitioners were excluded from the study and 160 medical practitioners were selected. The subjects were asked to complete a questionnaire at their work place. It was a closed-ended questionnaire with responses presented as yes/no choices. The validity of the questionnaire was approved by three faculties. It was certified that this questionnaire has the ability to measure practitioners awareness level about periodontal diseases and the level of awareness regarding the bidirectional relationships between periodontal disease and systemic conditions (Diabetes Mellitus DM, Cardio-vascular disorders CVD, pregnancy, respiratory diseases, osteoporosis, and rheumatoid arthritis).

The table 1 depicts the study population of medical practitioners based on their experience of medical practice. Medical practitioners with less than 10 years of experience included 32 (58.1%) males and 23 (41.8%) females. Amongst practitioners with experience of 10-20 years included 44(66.6%) males and 26(39.3% females. Practitioners with greater than 20 years of experience include 22(62.8%) males and 13(37.1%) females.

Table 1 Gender distribution on the basis of practice experience in years

Experience (years)	Male (number,%)	Females (number,%)	Total (number,%)
< 10 years	32(58.1%)	23(41.8%)	55(34.3%)
10-20 years	44(66.6%)	26(39.3%)	66(41.2%)
>20 years	22(62.8%)	13(37.1%)	35(21.8%)
Total	98(61.25)	62(38.7%)	160(100%)

Table 2 represents the questionnaire for assessment of knowledge among medical practitioners regarding association between periodontal diseases and systemic conditions. 42(26.2%) of medical practitioners did know of a few signs and symptoms of periodontal disease . However a large group 118 (73.7%) were not aware of the disease. 39(24.3%) Practitioners did know inflammation as a key component in periodontal disease and systemic conditions but 121(75.6%) were not knowing inflammation as key component in periodontal disease. 17 (10.6%) did know that diabetses mellitus affects the periodontal status but 143 (89.3%) didn't know the effect of diabetes mellitus on periodontal status. 25 (15.6%) were aware about gum problems affecting the pregnancy outcomes but 135 (84.3%) were not aware about it and 40 (25%) did know that pregnancy affects gums but 120 (75%) were not aware about it. 37(23.1%) practitioners opted that periodontal disease can be treated with antibiotics only but 123(76.8%) were not aware of it. 13(8.1%) considered that non surgical periodontal therapy could improve parameters of diabetes mellitus and rheumatoid arthritis and reduce the risk of aspiration pneumonia but 147 (91.8%) were not knowing this. 11(6.8%) considered oral bacteria associated with atherosclerosis and myocardial infarction but 149(93.1%) were not knowing this. Only 10 (6.2%) asked about dental or oral problems in patients with systemic conditions however a larger population 150 (93.7%) didn't ask for oral health problems. However 140(87.5%) practitioners did agree for training and awareness programmes for better general public health.

Table 2 Medical practitioners opinion about periodontal disease and systemic health

Questionaire about periodontal disease and systemic health	Yes	No
Do you know the signs and symptoms of periodontal diseases?	42 (26.2%)	118 (73.7%)
Do you know that Inflammation is a key component between periodontal disease and systemic conditions ?	39 (24.3%)	121 (75.6%)
Do you think diabetes mellitus affects the periodontal status of a patient ?	17 (10.6%)	143 (89.3%)
Do you think gum problems could affect the outcomes of pregnancy ?	25 (15.6%)	135 (84.3%)
Do you think pregnancy increases the likelyhood of gums to bleed,swell or become red ?	40 (25%)	120 (75%)
Can periodontal disease be treated with antibiotics only ?	37 (23.1%)	123 (76.8%)
Do you know that non surgical periodontal therapy improves diabetes mellitus , rheumatoid arthritis parameters and reduces risk of aspiration pneumonia ?	13 (8.1%)	147 (91.8%)
Do you know increased oral load of bacteria is associated with atherosclerosis and myocardial infarction ?	11 (6.8%)	149 (93.1%)
Do you think medical and dental practioners should be trained to work collaboratively ?	140 (87.5%)	20 (12.5%)
Do you usually ask about dental or oral problems from patients with systemic disease/ conditions ?	10 (6.2%)	150 (93.7%)

DISCUSSION

Periodontal disease is an inflammatory disease initiated by bacterial pathogens. The knowledge of pathogenesis of periodontal disease has changed remarkably over last 30 years.[6] Although pathogenic bacteria are necessary for periodontal disease, a susceptible host is also imperative.[7] Systemic disorders affecting neutrophil, monocyte/macrophage and lymphocyte function result in altered production of host inflammatory mediators.[8] The systemic conditions in which the influences of periodontal diseases are documented include coronary heart disease(CHD) and CHD-related events such as angina and infarction , atherosclerosis, stroke, diabetes mellitus, premature labour, preterm low birth weight delivery and respiratory conditions like chronic obstructive pulmonary disease.[9,10]

Periodontal disease is considered as the sixth complication of diabetes.[11] In patients with poorly controlled diabetes, the

function of polymorphic neutrophils and monocyte/ macrophages is impaired.[12] Poor glycemic control is also associated with increase in advanced glycation end-product formation, rendering the periodontal tissues more susceptible to destruction.[13] Patients with acute myocardial infarction or confirmed coronary heart disease compared with age and gender matched control patients, myocardial infarction patients had significantly worst dental health than did controls.[14,15,16] Janket *et al*[17] found an overall 19% increased risk of myocardial infarction and coronary heart diseases in individuals with periodontal disease. Patients with periodontal disease are at increased risk for thickening of walls of major coronary arteries.[18] In atheromas obtained from humans during endarterectomy, more than half of the lesions contained periodontal pathogens and many atheromas contained multiple different periodontal species.[19,20,21] cardiovascular diseases are increasingly recognized as having a major systemic inflammatory component , further emphasizing possible similarities with inflammatory periodontal diseases.[22]

Offenbacher *et al* found that women having low birth weight infants had significantly greater clinical attachment loss than women having normal birth weight infants.[23] Subjects with periodontal disease had a fivefold increased risk of preterm birth before 35 weeks of gestation and a sevenfold increased risk of delivering before 32 weeks compared with women without periodontal disease.[8]

In our study 24.3% medical practitioners were knowing that inflammation is key component in periodontal disease and systemic conditions in comparison to 82% by Kashefimehr *et al*[24] were aware about it. Only 10.6% were knowing about the bi-directional association between diabetes mellitus and periodontal disease which is very low when compared to 83.2% in A S Anandkumar[25] study .In our study 15% of practitioners were aware of that periodontal disease is associated with undesired pregnancy outcomes in comparison to A S Anandkumar's study,where 36.1% did know it. In our study only 6.8% practitioners were aware abvout the association between oral bacteriasl load and increased isk of atherosclerosis and myocardial infarction compared to kashefimehr *et al* 88% did know about it and khawla aljohani *et al*[26] 37.1% were aware about it. However 87.5% of practitioners believed in working in collaboration with dentists for better public heath delivery and the results were almost same as in kashefimehr *et al* of about 80%. The study was conducted in only one region , so the results cannot be drawn up to the national level. For that purpose large scale population study needs to be conducted.

CONCLUSIONS

This study was conducted for the purpose of estimating the awareness among medical practitioners regarding the importance of periodontal health and its association with various systemic conditions. There should be collaboration among medical practitioners and the dentists for conducting interdisciplinary seminars, discussions and a few compulsory lectures on periodontal health during medical graduation to ensure the proper standards of periodontal health care and ultimately the general health amongst the general public.

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