Original Article

Practitioners' Perspective towards Association Between Periodontal Disease and Systemic Illness

Knowledge of Medical and Dental Practitioners about Periodontal Diseases

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ABSTRACT

Objective: To determine the knowledge of medical and dental practitioners about association of periodontal diseases and systemic illness.

Study Design: Cross-sectional study

Place and Duration of Study: This study was conducted at the general dentists and general medical practitioners, and medical consultants from Khyber College of Dentistry, Khyber teaching hospital and Khyber medical college in Peshawar for 02 months from September to October 2022.

Materials and Methods: A cross-sectional survey was conducted via a self-designed, close-ended questionnaire on 76 medical and dental practitioners. The inclusion criteria were medical and dental practitioners who have more 5 years experience and both genders. The dental practitioners who had training or qualification in Periodontics were excluded. The questions asked were; systemic diseases may lead to periodontal disease, periodontal disease may lead to systemic diseases, is it a two-way process, periodontal disease is risk factor for medical conditions. Fisher exact was applied for comparison of awareness among practitioners.

Results: The males were 44 (57.89%) and females were 32 (42.11%). Half of the participants (n=38, 50%) know that 'systemic diseases lead to periodontal disease' and similarly 50% know that 'periodontal disease lead to systemic diseases'. The knowledge for two way relation between periodontal and systemic disease was found in 20 (26.32%). Statistical differences were found for knowledge about 'systemic diseases lead to periodontal disease' (p=0.042) and 'periodontal disease lead to systemic diseases' (p=0.042) among practitioners.

Conclusion: Dental and medical practitioners have less knowledge about association of periodontal disease and systemic illnes.

Key Words: Awareness, knowledge, association, periodontal disease, medical conditions

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INTRODUCTION

Periodontal diseases are usually due to gram negative bacteria and characterized by the loss of periodontal tissues.[1] Periodontal disease can be of two types; reversible or gingivitis and irreversible or periodontitis. The prevalence of periodontal disease is quiet higher and constituting a major health issue.[2]

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Many predisposing factors have been documented for periodontitis like improper oral hygiene, use of cigarettes, males gender, poor socioeconomic status and medical disorders.[3] The importance of periodontal health and their connection with overall health have been established.[4] Periodontal disease is assumed to have role in non-infectious disorders like diabetes, circulatory diseases, cancer and chronic respiratory diseases.[5]

A study was conducted at India on awareness about the effects of systemic disease on periodontal disease among internees. Their results shows that the level of awareness among medical internees was fair, poor and good in 67(47%), 60(42%), and 18(11%) respectively.[6] Another study reported that 56.7% faculty members were aware about that periodontal disease and systemic diseases has bidirectional relation and 39.3% know that periodontal disease risk factors for preterm low-birth weight infants.[7]

The knowledge about link of periodontal and systemic diseases is important to prevent complications. Periodontal disease is a preventable condition. There is lack of local research on this subject. This study will help to provide local baseline data. So this study was

conducted to determine the knowledge of medical and dental practitioners about association of periodontal diseases and systemic illness.

MATERIALS AND METHODS

A cross-sectional survey was conducted via a self-designed, close-ended questionnaire, in a non-probability, consecutive sampling technique. The calculated sample size was 76 by WHO calculator at 95% confidence level, 7% margin of errors and using 11% awareness about the association of periodontal disease and systemic conditions from previous study[6]. The participants of this study were registered general dentists and general medical practitioners, and medical consultants from Khyber College of Dentistry, Khyber teaching hospital and Khyber medical college in Peshawar. The inclusion criteria were medical and dental practitioners who have more than 5 years experience and both genders. The dental practitioners who had training or qualification in Periodontics were excluded.

A verbal informed consent was obtained from all participants after explaining the aims of the study. The participants of this study were approached personally. Questionnaires were given to all participants. The demographic data like age, gender and discipline (general medical, medical consultants and dental practitioners) were recorded. The questions asked were; systemic diseases may lead to periodontal disease, periodontal disease may lead to systemic diseases, is it a two-way process, medical conditions (diabetes mellitus, coronary heart disease, osteoporosis and pre-term labor) for periodontal diseases. The responses for all questions were recorded as know, don't know and can't say. Biases and confounders were controlled in the study by strictly following inclusion criteria.

The data analysis was conducted in SPSS 22. Descriptive statistics in the form of percentages along with frequency for qualitative variables and mean and SD for continuous data were calculated. The responses of awareness about the association of periodontal disease and medical conditions were compared among practitioners (dental, general medical and medical specialists) using Fisher exact test. The level of significance was $p \leq 0.05$.

RESULTS

The males were 44 (57.89%) and females were 32 (42.11%). Most frequent age category was 30-40 years (n=37, 48.68%) followed by 41-50 years (n=34, 44.74%). (Table 1)

Most of the participants were medical consultants (n=36, 47.37%) followed dental practitioners (29, 38.16%) and least were general medical practitioners (n=11, 14.4%). (Fig 1)

Table No.1: Frequency of gender and age group

	Characteristic	n(%)
Gender	Female	32 (42.11)
	Male	44 (57.89)
Age group (years)	30-40	37 (48.68)
	41-50	34 (44.74)
	51 & above	5 (6.58)

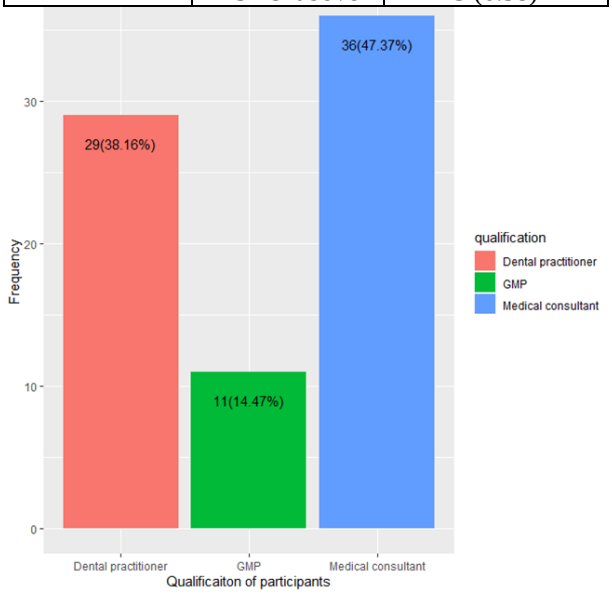

Figure No.1: Qualification of participants

Table No.2: Awareness about association between periodontal disease and systemic illness among medical and dental practitioners

variable	Characteristic	n(%)
Systemic diseases lead to periodontal disease	can't say	20 (26.32)
	don't know	18 (23.68)
	Know	38 (50.00)
Periodontal disease lead to systemic diseases	can't say	20 (26.32)
	don't know	18 (23.68)
	Know	38 (50.00)
Two way relation between periodontal and systemic disease	can't say	27 (35.53)
	don't know	29 (38.16)
	Know	20 (26.32)
Diabetes mellitus is risk factor for periodontal disease	can't say	3 (3.95)
	don't know	15 (19.74)
	Know	58 (76.32)
CVD is risk factor for periodontal disease	can't say	6 (7.89)
	don't know	23 (30.26)
	Know	47 (61.84)
Preterm labor is risk factor for periodontal disease	can't say	7 (9.21)
	don't know	28 (36.84)
	Know	41 (53.95)
Osteoporosis is risk factor for periodontal disease	can't say	7 (9.21)
	don't know	24 (31.58)
	Know	45 (59.21)

*CVD, cardiovascular disease

Table No.3: Comparison of association between periodontal disease and systemic illness among dental practitioners, general medical practitioner and medical consultants

variable	Characteristic	Dental practitioner, N = 29*	GMP, N = 11*	Medical consultant, N = 36*	p-value**
Systemic diseases lead to periodontal disease	can't say	6 (20.69)	3 (27.27)	11 (30.56)	0.042
	don't know	4 (13.79)	6 (54.55)	8 (22.22)	
	Know	19 (65.52)	2 (18.18)	17 (47.22)	
Periodontal disease lead to systemic diseases	can't say	6 (20.69)	3 (27.27)	11 (30.56)	0.042
	don't know	4 (13.79)	6 (54.55)	8 (22.22)	
	Know	19 (65.52)	2 (18.18)	17 (47.22)	
Two way relation between periodontal and systemic disease	can't say	9 (31.03)	3 (27.27)	15 (41.67)	0.26
	don't know	12 (41.38)	7 (63.64)	10 (27.78)	
	Know	8 (27.59)	1 (9.09)	11 (30.56)	
Diabetes mellitus is risk factor for periodontal disease	can't say	0 (0.00)	2 (18.18)	1 (2.78)	<0.001
	don't know	6 (20.69)	6 (54.55)	3 (8.33)	
	Know	23 (79.31)	3 (27.27)	32 (88.89)	
CVD is risk factor for periodontal disease	can't say	0 (0.00)	2 (18.18)	4 (11.11)	0.074
	don't know	11 (37.93)	5 (45.45)	7 (19.44)	
	Know	18 (62.07)	4 (36.36)	25 (69.44)	
Preterm labor is risk factor for periodontal disease	can't say	1 (3.45)	2 (18.18)	4 (11.11)	0.21
	don't know	12 (41.38)	6 (54.55)	10 (27.78)	
	know	16 (55.17)	3 (27.27)	22 (61.11)	
Osteoporosis is risk factor for periodontal disease	can't say	0 (0.00)	2 (18.18)	5 (13.89)	0.031
	don't know	11 (37.93)	6 (54.55)	7 (19.44)	
	know	18 (62.07)	3 (27.27)	24 (66.67)	

* n (%); ** Fisher's exact test; GMP, general medical practitioner

Half of the participants (n=38, 50%) know that 'systemic diseases can lead to periodontal disease' and similarly 50% know that 'periodontal disease lead to systemic diseases'. The knowledge for two way relation between periodontal and systemic disease was found in 20 (26.32%) participants. The knowledge about Diabetes mellitus, cardiovascular disease, Preterm labor and Osteoporosis to be risk factor for periodontal diseases were found in 58 (76.32%), 47 (61.84%), 41 (53.95%) and 45 (59.21%) respectively. (Table 2)

Statistical differences were found for knowledge about 'systemic diseases can lead to periodontal disease' (p=0.042) and 'periodontal disease can lead to systemic diseases' (p=0.042). For 'systemic diseases can lead to periodontal disease' the highest knowledge was found among dental practitioners (n=19, 65.52%) followed by medical consultant (n=17, 47.22%) and least among GMP (n=2, 18.18%). Similar results were found for 'periodontal disease can lead to systemic diseases'. The results were not non-significant for 'two way relation between periodontal and systemic disease'. The differences among different practitioners for diabetes mellitus (p<0.001) and osteoporosis (p=0.031) is risk factor for periodontal disease were statistically. Highest knowledge was found for 'diabetes mellitus is risk factor for periodontal disease' among medical consultants (n=32, 88.89%) followed by dental practitioners (n=23, 79.31%) and least among GMP(n=4, 36.36%). Similar results were found for 'osteoporosis is risk factor for periodontal disease'. (Table 3).

DISCUSSION

This survey was conducted to determine the knowledge of medical and dental practitioners about association of periodontal diseases and systemic conditions. Our findings showed about half practitioner have knowledge about association of systemic illness and periodontal disease. The level of relevant qualification has significant impact on this knowledge.

Periodontal disease is an infectious disease arising from interaction among host and pathogens. Bacteria come from oral cavity which is normal oral flora but when it cross oral mucosa and junctional epethelium it become pathogenic. Many risk factors have been reported for periodontal diseases like lack of proper oral hygiene measure, old age, hormonal changes in pregnancy and medical conditions.[8, 9]

Diabetes mellitus has many complication like neuropathy, vasculopathy and retinopathy. Periodontal diease is th sixth common complication of diabetes mellitus. Increase sugar level in blood lead to pathogen receptors expression, augment the pro-inflammatory response, promote bacterial replication and activation of osteoclasts. All these humoral changes lead to destruction of periodontium.[10] Association has been reported between cardiovascular disease and periodontitis.[11] Many chronic inflammatory diseases including periodontitis has been linked to cardiovascular disease. [12]

People usually neglect health of oral cavity and give priority to medical health only. It is usually

underestimated that oral disease can be deteriorating factor for general body health. So knowledge about the relation between systemic illness and periodontal health is of paramount importance.[13]

Our study showed that dental and medical practitioners limited have knowledge about the association of systemic disease and peridontal diseases. A study conducted in India on medical residents on association of systemic diseases and periodontal diseases and reported that medical residents have less knowledge. [6] Another study on medical faculty reported that 56.7% responded that the relationship between periodontal disease and systemic diseases is two way.[14] Another study by Vellayappan et al. on knowlesdge of medical practitioners about the effect of periodontal disease on body health showed that awareness was present in 79% participants.[15] In our study showed that awarness were more among dental practitioner followed by medical consultants and least among general medical practitioners. In this study we exclude periodontists and those who are working periodontics department. Previous study also reported that dental practitioners were more aware than medical practitioeners.[16]

This study have some limitation like unequal number of participants of various qualifications. This closed ended study and qualitative research with open ended quesitons can better explore this subject**.**

CONCLUSION

Dental and medical practitioners have less knowledge about association of periodontal disease and systemic illnes. Proper education is need to be given to all medical and dental practitioners about the link of oral and systemic diseaes to prevent its complications.

Author's Contribution:

Concept & Design of Study:	Mahirah Iqbal
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Data Analysis:	Hussam Muhammad Ashfaq, Muhammad Ifham Khan Jadoon, Shamim Akhtar
Revisiting Critically:	Mahirah Iqbal, Zeeshan Danish
Final Approval of version:	Mahirah Iqbal

Conflict of Interest: The study has no conflict of interest to declare by any author.

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