Comparative study of Perceptions and Practices Regarding Periodontitis as a Cardiovascular Risk Factor among Dental and Medical Postgraduate Students

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Abstract:

Background:

Periodontitis, a chronic inflammatory disease, is increasingly recognized as a significant risk factor for cardiovascular diseases (CVDs). Effective management of patients with both conditions requires awareness among healthcare professionals, particularly medical and dental postgraduates.

Aim:

To assess and compare the knowledge, attitudes, and practices (KAP) of dental and medical postgraduate students regarding periodontitis as a risk factor for CVD and its implications for patient management.

Methods:

A cross-sectional study was conducted among 263 postgraduate students in central Gujarat, comprising 113 dental and 150 medical students. A structured 23-item self-administered questionnaire was distributed in pen-and-paper format.

Statistical analysis included descriptive statistics, t-tests, ANOVA, Post Hoc comparisons, Fisher’s exact test, and Pearson's correlation.

Results:

Dental PGs demonstrated significantly higher knowledge scores about the periodontitis-CVD link ($p < 0.01$). While 50.4% of dental PGs "always" inquired about periodontitis in CVD patients, only 10.7% of medical PGs did so. Both groups acknowledged the increased cardiac risk in patients with coexisting periodontitis, but only 40.3% of medical PGs referred such cases to a periodontist, compared to 82.3% of dental PGs. Dual antiplatelet therapy (aspirin + clopidogrel) was the most commonly encountered regimen. Referrals for antiplatelet discontinuation before dental procedures were significantly more frequent among dental PGs.

Conclusion:

Despite general awareness of the oral-systemic connection, dental PGs exhibit better knowledge and clinical readiness. These findings highlight the urgent need to integrate periodontal-systemic health education into the medical curriculum to enhance interdisciplinary collaboration and patient care outcomes.

Keywords: Periodontitis, Cardiovascular disease, Medical education, Dental postgraduate, Interdisciplinary care

Introduction

Periodontitis affects nearly half the global population[1] and is a major non-communicable disease. The bidirectional association between periodontitis and cardiovascular diseases has been well-documented.[2,3] Despite this, awareness and practice integration among postgraduate students—future practitioners—remain inconsistent. This study evaluates their preparedness and perception of this vital link.

Materials and Methods

The present cross-sectional study involved 263 PG students (DPG = 113, MPG = 150) from the dental and medical colleges of central Gujarat. Structured 23-item questionnaires (validated, self-administered) were distributed in physical format. The domains over which the study was designed were Knowledge (e.g., risk factors, signs of periodontal disease), Attitude (agreement with clinical statements), Practices (referrals, management of anticoagulated patients) of both dental and medical postgraduate students. Statistical analysis for descriptive statistics like frequency, percentage, mean, Standard deviation, Confidence Interval, One-way ANOVA, Post Hoc test for multiple comparisons, Fisher's Exact test, and Pearson's Correlation has been done by MS Excel and STATA/IC-13.

Results

In the assessment of knowledge-based responses, a significantly higher proportion of dental postgraduate students (35.4%) "strongly agreed" that periodontitis is a risk factor for cardiovascular disease (CVD), compared to only 12% of medical postgraduate students. Referral patterns showed a marked difference, with 91.2% of dental PGs referring patients for antiplatelet discontinuation prior to periodontal surgery, in contrast to 82.7% of medical PGs.

Overall, the Knowledge, Attitude, and Practice (KAP) scores were significantly higher among dental postgraduate students across all evaluated categories, with statistical significance established at $p < 0.05$.

Discussion

Findings underscore a discrepancy in systemic health integration between medical and dental education. While medical PGs have a foundational understanding, they lack the detailed practical approach that dental PGs exhibit. This gap may lead to missed opportunities in early identification and prevention[5] of cardiovascular complications rooted in periodontal infections. In the present study, a comprehensive comparison of dental and medical postgraduate (PG) students revealed that dental PGs demonstrated significantly higher knowledge, better attitudes, and more appropriate clinical practices regarding periodontitis as a cardiovascular risk factor. Knowledge levels among dental PGs were notably superior. Approximately 35.4% of dental PGs strongly agreed that periodontitis is a risk factor for cardiovascular disease (CVD), compared to only 12% of medical PGs. Dental PGs were more aware of the systemic consequences of periodontitis, including its links with myocardial infarction, stroke, heart failure, atrial fibrillation, and peripheral arterial disease. They also had better understanding of the global prevalence of periodontitis, with 18.6% aware of such data versus 5.4% of medical PGs. Furthermore, more than 50% of medical PGs were unaware of “periodontist” as a dental specialist, often referring patients to general dentists instead.

A significant difference was also observed in referral patterns before dental surgery—91.2% of dental PGs referred patients for antiplatelet discontinuation prior to periodontal procedures, compared to 82.7% of medical PGs. This is important considering current guidelines advise against routine discontinuation

of antiplatelets for most dental surgeries, highlighting the need for up-to-date training[4] among both groups.

In terms of learning sources, 77% of dental PGs preferred books, whereas only 43.5% of medical PGs relied on textbook literature. Use of indexed journals was low across both groups, but electronic media was more frequently used by medical PGs. Despite the digital shift [6], the reliance on non-indexed and potentially unreliable sources remains a concern.

Overall, the study findings confirm that dental PGs had significantly higher KAP scores across all parameters ($p < 0.05$). This reflects not only a better understanding of the periodontal-systemic link but also more evidence-based clinical behavior.[7] The results underscore the urgent need to incorporate structured dental education modules into postgraduate medical curricula to bridge existing knowledge gaps and promote interdisciplinary patient care.

Conclusion

Postgraduate dental students showed superior knowledge and preparedness in managing CVD patients with periodontal conditions. Urgent reforms are warranted [8,9] in the medical curriculum to promote interdisciplinary collaboration.

Tables:

Table 1. A distribution of respondents

Category of respondents	**Dental postgraduate students (DUG)**	**Medical postgraduate students (MPG)**
Number of respondents in each category	**113**	**150**

Table 2. Showing the responses of knowledge and practice regarding "Periodontitis."

Options of Responses	How often have you asked your CVD patients about symptoms of Periodontitis (% of responses)	
	DPG (n=113)	MPG (n=150)
Always	57(50.4%)	16(10.7%)
Many time	33(29.2%)	39(26%)
Sometimes	18(15.9%)	56(37.3%)
Less frequently	4(3.5%)	28(18.7%)
Rarely	1(0.9%)	9(6%)
Never	0(0%)	2(1.3%)

CVD- Cardiovascular disease, DPG- Dental postgraduate students, MPG- Medical Postgraduate students

Table 3. Showing the responses of knowledge and practice regarding "Periodontitis as a risk factor for cardiovascular disease."

Table 3. a

Options of Responses	Periodontitis belongs to which category in association with cardiovascular disease (% of responses)	
	DPG (n=113)	MPG (n=150)
Major risk factor	32(28.3%)	37(24.7%)
Minor risk factor	31(27.4%)	64(42.7%)
Risk factor	49(43.4%)	36(24%)
Not a risk factor	0(0%)	2(1.3%)
Do not know	1(0.9%)	11(7.3%)

DPG- Dental postgraduate students, MPG- Medical Postgraduate students

Table 3. b

Options of Responses	Knowledge about - patients with Periodontitis have (% of responses)	
	DPG (n=113)	MPG (n=150)
higher prevalence of Coronary artery disease (CAD)	47(41.6%)	49(32.7%)
higher prevalence of Peripheral Artery disease (PAD)	29(25.7%)	18(12%)
risk of Ventricular septal defect (VSD)	12(10.6%)	20(13.3%)
risk of myocardial infarction (MI)	60(53.1%)	28(18.7%)
risk of stroke	16(14.2%)	32(21.3%)
higher risk of Heart failure	17(15%)	15(10%)
higher risk of Atrial fibrillation	13(11.5%)	13(8.7%)
higher risk of Subclinical cardiovascular disease	42(37.2%)	19(12.7%)
higher risk of Ventricular Tachycardia	7(6.2%)	6(4%)
All of the above	13(11.5%)	49(32.7%)
None of the above	1(0.9%)	8(5.3%)
Can not say	8(7.1%)	10(6.7%)

DPG- Dental postgraduate students, MPG- Medical Postgraduate students, CAD- coronary artery disease, PAD- Peripheral Artery Disease, VSD- Ventricular septal defect, MI- Myocardial Infarction

Table 4. Showing the responses of dental and medical postgraduate students for attitudes and practices towards CVD patients with symptoms of Periodontitis

Table 4. a

Options of Responses	Approach towards CVD patients with symptoms of Periodontitis(% of responses)	
	DPG (n=113)	MPG (n=149)
Prescribe Medication	7 (6.2%)	12 (8.1%)
Refer to General dentist	8(7.1%)	33(22.1%)
Refer to a Dental Specialist	4(3.5%)	43(28.9%)
Refer to Periodontist	93(82.3%)	60(40.3%)
None	1(0.9%)	1(0.7%)

DPG- Dental postgraduate students, MPG- Medical Postgraduate students

Table 4. b

Options of Responses	Referral of the CVD patient for discontinuation of antiplatelet medication for dental surgical procedures like (% of responses)	
	DPG (n=113)	MPG (n=150)
Conventional surgical periodontal treatment (conservative, resective, or regenerative)	103(91.2%)	124(82.7%)
tooth extraction	108(95.6%)	120(80%)
dental implant placement	106(93.8%)	122(81.3%)
Any other	2(1.8%)	4(2.7%)
Never	0(0%)	2(1.3%)

DPG- Dental postgraduate students, MPG- Medical Postgraduate students

Table 5. Showing Sources of respondents' knowledge

Options of Responses	Sources of respondents' knowledge	
	DPG (n=113)	**MPG (n=148)**
Literature from indexed Journals	25 (22.1%)	13 (8.8%)
Electronic media	24 (21.2%)	49 (33.1%)
Dental/Medical experts	39 (34.5%)	26 (17.6%)
Literature from books	87 (77%)	67 (45.3%)

DPG- Dental postgraduate students, MPG- Medical Postgraduate students

Table 6. Comparison of knowledge/perception, attitudes, and practices between both study groups using ANOVA

		N	Mean	Std. Deviation	95% Confidence Interval for Mean		Minimum	Maximum
					Lower Bound	Upper Bound		
knowledge	DPG	113	51.52	12.341	49.22	53.82	22.22	77.78
	MPG	150	46.30	15.147	43.85	48.73	11.11	77.78
attitude	DPG	113	34.81	30.986	29.03	40.58	0	100.00
	MPG	150	18.89	26.026	14.68	23.08	0	100.00
practice	DPG	113	30.97	15.568	28.07	33.87	0	66.67
	MPG	150	17.22	13.295	15.07	19.36	0	50.00

DPG- Dental postgraduate students, MPG- Medical Postgraduate students

Table 7. Post Hoc Tests to compare knowledge/perception, attitudes, and practices of both study groups

Dependent Variable	Group of Student		Mean Difference	p-value
Knowledge	DPG	MPG	5.22896*	.020
Attitudes	DPG	MPG	15.91948*	.000
Practices	DPG	MPG	13.75054*	.000

The mean knowledge, attitudes and practices scores regarding periodontitis as a risk factor for cardiovascular diseases of dental postgraduate students were significantly higher than those of medical postgraduate students (p-value<0.05)

DPG- Dental postgraduate students, MPG- Medical Postgraduate students

Abbreviations:

CVD- cardiovascular disease

ACVD- Atherosclerotic cardiovascular disease

DUG- Dental Undergraduate student

DPG- Dental Postgraduate student

MUG- Medical Undergraduate student

MPG- Medical Postgraduate student

NCD- Non-communicable diseases

CAD- coronary artery disease

PAD- Peripheral Artery Disease

MI- Myocardial Infarction

AHA- American Heart Association

ACC- American College of Cardiology

SCAI- Society for Cardiovascular Angiography & Interventions

ACS- American Cardiology Society

ADA- American Dental Association

ESC- European Society of Cardiology

ACCP- American College of Clinical Pharmacy

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