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ORIGINAL RESEARCH

Oral health status, behaviours and knowledge of patients with cardiovascular disease

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Abstract

Background: Cardiovascular disease (CVD) remains a global major cause of death and represents a significant disease burden in populations around the world. The present study was conducted to assess oral health status, behaviours and knowledge of patients with cardiovascular disease.

Materials & Methods:160 patients attending dentistry and medicine department were provided with questionnaire which had oral health status, oral health care behaviours and perceptions, their confidence in dental self-care, oral health knowledge and beliefs, information received about oral health since cardiac diagnosis, and social and family support.

Results: There were 100 males and 60 females. Cardiovascular condition was CAD in 42, arrhythmia in 35, hypertension in 65 and heart failure in 18. Marital status was unmarried in 55 and married in 105. Oral health status was excellent in 12%, very good in 10%, good in 35%, fair in 30% and poor in 3%. Oral health problems were dental caries in 18%, tooth ache in 32%, sensitivity in 20%, bleeding gums in 15%, dry mouth in 10% and loose teeth in 5%. Importance of oral health compared to overall health was low importance (0–4) in 4%, neutral (5) in 15% and important to extremely important (6–10) in 81%. They used to brush teeth/denture few times a week in 18%, once a day in 22%, 2 or more times a day in 54% and never in 6%. Oral hygiene products used were fluoride toothpaste in 85%, dental floss in 18%, mouthwash in 22% and sugar free chewing gum in 15%. Last dental visit <1 year was seen in 71%, 1-2 years in 11% and >2 years in 18%. The difference was significant ($P< 0.05$).

Conclusion: People with CVD had high prevalence of self-reported oral health problems and poor knowledge about the importance of oral health.

Key words: Cardiovascular disease, oral health, knowledge

Introduction

Cardiovascular disease (CVD) remains a global major cause of death and represents a significant disease burden in populations around the world.[1]The global burden of disease studies reported an estimated 422.7 million cases of CVD, causing 17.92 million deaths worldwide in 2015. Developing countries are facing a high burden of CVD whilst awareness of disease and associated risk factors is limited. Those living in poverty and especially those in low-income countries are significantly more impacted by CVD.[2] Moreover, findings show that the prevalence of CVD is increasing and posing a public health challenge in developing countries. High blood pressure is of major influence in the increasing CVD burden in these countries. For most patients with hypertension it is uncontrolled which causes further

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cardiovascular (CV) complications. Hypertension affects more than 1.3 billion people worldwide and one third of adults have the condition.[3]

There is an association between periodontal disease and the prevalence of cardiovascular disease (CVD) with growing evidence suggesting that periodontal disease is a risk factor for atherosclerotic cardiovascular disease (ASCVD).[4]Periodontal disease or periodontitis is a chronic inflammatory disease affecting the tooth supporting tissues and bone. It is caused by a host response against bacterial infection involving the oral cavity and dental plaque leading to tooth loss.[5] Periodontitis contributes to the global burden of chronic oral diseases and is a major public health problem worldwide. In Australia, periodontitis is the fifth most common health challenge with a prevalence of 23% for moderate to severe types of the disease with higher incidence in males (26.8% compared with 19.0%) and in older people (53.4% at age > 65).[6]The present study was conducted to assess oral health status, behaviours and knowledge of patients with cardiovascular disease.

Materials & Methods

The present study comprised of 160 patients attending department of dentistry and medicine of Prasad Institute Of Medical Sciences, Uttar Pradesh, India.

Study was approved by ethical committee of the institute and the consent was obtained from all patients.

Data such as name, age, gender etc. was recorded. The study questionnaire had oral health status, oral health care behaviours and perceptions, their confidence in dental self-care, oral health knowledge and beliefs, information received about oral health since cardiac diagnosis, and social and family support. Data thus obtained were subjected to statistical analysis. P value < 0.05 was considered significant.

Results

Table I Demographic data

Parameters	Variables	Number	P value
Gender	Male	100	0.04
	Female	60	
Cardiovascular condition	CAD	42	0.12
	Arrhythmia	35	
	Hypertension	65	
	Heart failure	18	
Marital status	Unmarried	55	0.01
	married	105	

Table I, graph I shows that there were 100 males and 60 females. Cardiovascular condition was CAD in 42, arrhythmia in 35, hypertension in 65 and heart failure in 18. Marital status was unmarried in 55 and married in 105. The difference was significant (P< 0.05).

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Graph I: Demographic data

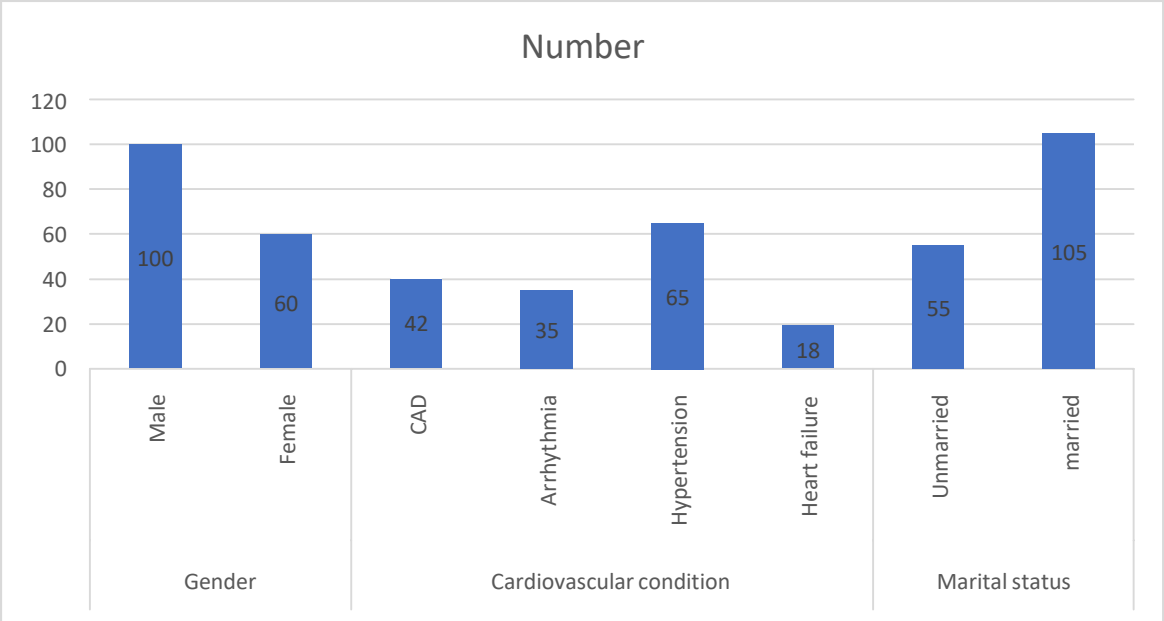

Table II Oral health status and behaviour of people with cardiovascular diseases

Parameters	Variables	Number	P value
Oral health status	Excellent	12%	0.02
	Very good	10%	
	Good	35%	
	Fair	30%	
	Poor	3%	
oral health problems	Dental caries	18%	0.01
	Tooth ache	32%	
	Sensitivity	20%	
	Bleeding gums	15%	
	Dry mouth	10%	
	Loose teeth	5%	
Importance of oral health compared to overall health	Low importance (0–4)	4%	0.01
	Neutral (5)	15%	
	Important to extremely important (6–10)	81%	
How often do you brush your teeth/denture	Few times a week	18%	0.03
	Once a day	22%	
	2 or more times a day	54%	
	Never	6%	
Oral hygiene products used	Fluoride toothpaste	85%	0.05
	Dental floss	18%	
	Mouthwash	22%	
	Sugar free chewing gum	15%	
When was your last dental visit	<1 year	71%	0.01
	1-2 years	11%	
	>2 years	18%	

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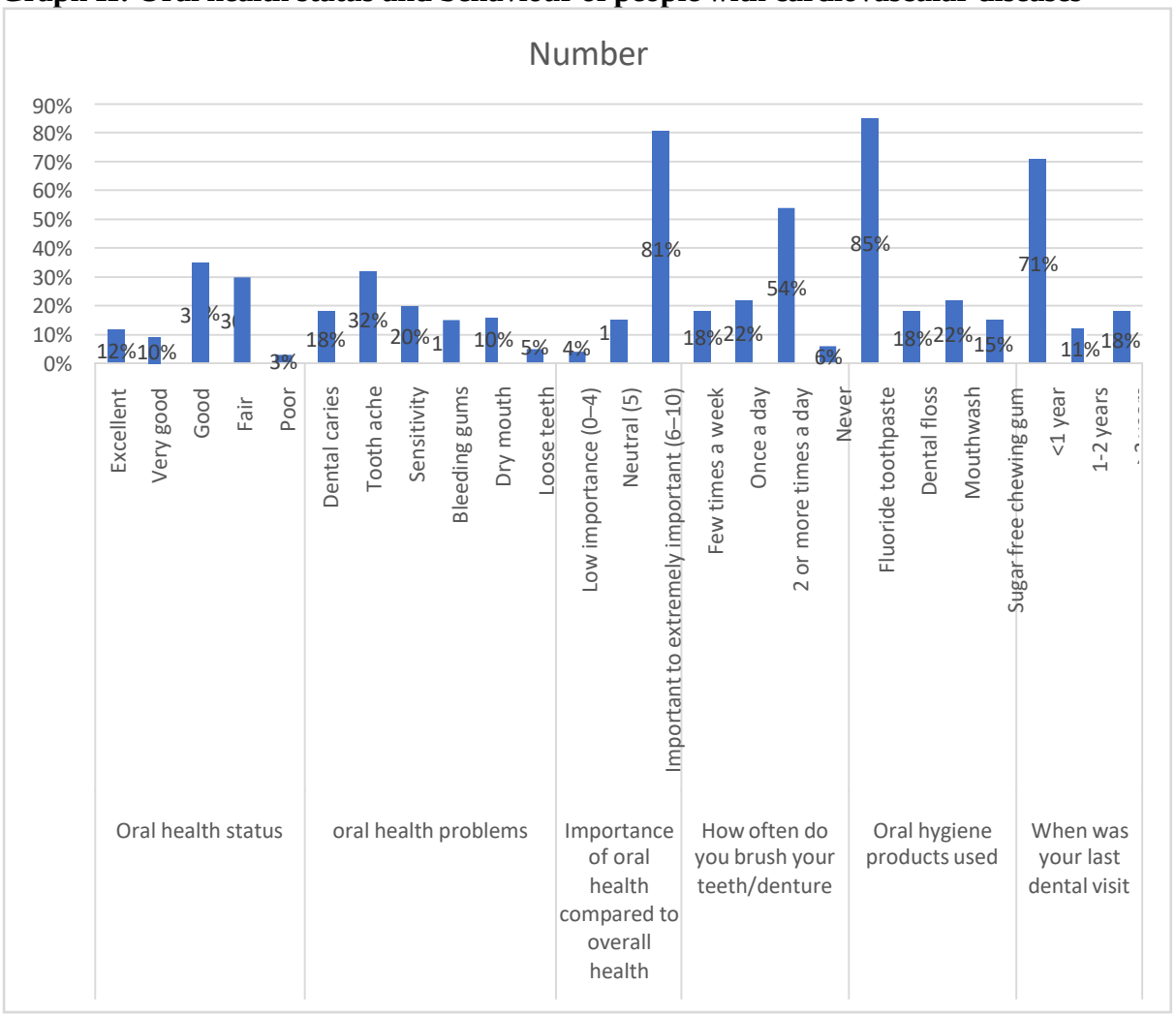
Table II, graph II shows that oral health status was excellent in 12%, very good in 10%, good in 35%, fair in 30% and poor in 3%. Oral health problems were dental caries in 18%, tooth ache in 32%, sensitivity in 20%, bleeding gums in 15%, dry mouth in 10% and loose teeth in 5%. Importance of oral health compared to overall health was low importance (0–4) in 4%, neutral (5) in 15% and important to extremely important (6–10) in 81%. They used to brush teeth/denture few times a week in 18%, once a day in 22%, 2 or more times a day in 54% and never in 6%. Oral hygiene products used were fluoride toothpaste in 85%, dental floss in 18%, mouthwash in 22% and sugar free chewing gum in 15%. Last dental visit <1 year was seen in 71%, 1-2 years in 11% and >2 years in 18%. The difference was significant (P< 0.05).

Graph II: Oral health status and behaviour of people with cardiovascular diseases



Discussion

Cardiovascular diseases (CVDs) are the most important cause of mortality in India. The age-standardized Global Burden of Disease study estimates that 24.8% of all deaths in India is attributed to CVD. Coronary heart disease (CHD) and stroke are responsible for > 80% of CVD deaths.[7] Cardiovascular surgery (CVS) encompasses several surgical procedures like myocardial revascularization, valve repair or replacement, aortic diseases, correction of congenital heart disease, cardiac pacemaker implantation and heart transplant. Epidemiological studies have shown that oral infections, specifically periodontitis, may confer independent risks for different systemic conditions such as osteoporosis, diabetes mellitus, pulmonary infections, pre-term low-weight births and cardiovascular

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diseases.[8] Periodontal infections are able to cause indirect damage by releasing inflammatory mediators and eliciting different host-related reactions, such as monocyte hypersensitivity and different autoimmune responses.[9] Past research found almost one in four have a personal history of periodontal disease and higher levels of an inflammatory marker which has been present in inflamed, rupture-prone plaque in heart arteries/valves.[10]The present study was conducted to assess oral health status, behaviours and knowledge of patients with cardiovascular disease.

We found that there were 100 males and 60 females. Cardiovascular condition was CAD in 42, arrhythmia in 35, hypertension in 65 and heart failure in 18. Marital status was unmarried in 55 and married in 105. Sanchez et al[11] explored the oral health status, behaviours and knowledge of patients with cardiovascular disease. A cross-sectional questionnaire containing 31 items was administered to patients with cardiovascular diseases. Of the 318 patients surveyed, 81.1% reported having at least one oral health problem. Over a third (41.2%) of participants had not seen a dentist in the preceding 12 months and 10.7% had received any oral healthcare information in the cardiac setting. Those with valvular conditions were more likely to have received information compared to those with other cardiovascular conditions (40.6% versus 7.4%, $p < 0.001$). Only half of the participants had adequate oral health knowledge. Despite a high incidence of reported oral health problems, many patients lacked knowledge about oral health, were not receiving oral health information from cardiac care providers and had difficulty accessing dental services. Further research is needed to develop oral health strategies in this area.

We found that oral health status was excellent in 12%, very good in 10%, good in 35%, fair in 30% and poor in 3%. Oral health problems were dental caries in 18%, tooth ache in 32%, sensitivity in 20%, bleeding gums in 15%, dry mouth in 10% and loose teeth in 5%. Importance of oral health compared to overall health was low importance (0–4) in 4%, neutral (5) in 15% and important to extremely important (6–10) in 81%. They used to brush teeth/denture few times a week in 18%, once a day in 22%, 2 or more times a day in 54% and never in 6%. Oral hygiene products used were fluoride toothpaste in 85%, dental floss in 18%, mouthwash in 22% and sugar free chewing gum in 15%. Last dental visit <1 year was seen in 71%, 1-2 years in 11% and >2 years in 18%. Kumar et al[12] in their study assessment of oral health status, oral hygiene practices and treatment needs of 106 hospitalized patients in preparation for cardiovascular surgery was performed. Patients were interviewed using a structured questionnaire designed for this study and oral examination was carried out by a dentist. The oral hygiene practices of the study cohort were not up to the standard. Patients' awareness of infective endocarditis was poor. Approximately 68% patients experienced dental caries as decayed teeth or missing teeth due to caries and filled teeth. The mean plaque index in the study group was 1.25. In this study cohort, the mean probing depth of periodontal pockets was 5.7±1.3, whereas the mean number of teeth with periodontal pockets > 6 mm was 0.5±0.9. A total of 84 (74.2%) of the patients required dental treatment.

Conclusion

Authors found that people with CVD had high prevalence of self-reported oral health problems and poor knowledge about the importance of oral health.

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