ORIGINAL ARTICLE

ORAL HEALTH STATUS OF CORONARY HEART DISEASE AND NON-CORONARY HEART DISEASE POPULATION OF LAHORE

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ABSTRACT

Objective: To determine the association between oral health status of Coronary Heart Disease (CHD) and non-CHD population.

Material & Methods: It was case-control study carried out among CHD (n=40) and non-CHD (n=40) population visiting Sheikh Zaid Hospital Lahore. The collected data through questionnaire was analyzed by using SPSS 16.0. Frequencies and percentages were calculated and data was presented in tables. Confidentiality of the information was also ensured.

Results: Among 40 CHD populations, 52.5% were upto 40 years old and among 40 non-CHD populations, 55.0% were upto 40 years old. Likewise among CHD populations, 60.0% and among non-CHD populations, 65.0% were literate. The mean bleeding on probing (BOP), periodontal pocket depth (PPD) and tooth loss of CHD populations were 54.67±19.238, 2.31±0.937 and 3.85±3.537, respectively while BOP, PPD and tooth loss of non-CHD populations were 42.93±23.01, 1.85±0.958 and 2.52±3.357, respectively.

Conclusion: Study concluded that poor oral health status was higher among CHD than non-CHD group participants. There is need to conduct more studies on large scale to know the association of oral health status with coronary health diseases.

Key Words: Cardiac, Dental, Oral Health, Teeth.

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INTRODUCTION

The Cardiovascular diseases (CVD) are disorders of blood vessels and heart and comprise cerebrovascular disease, coronary heart disease, rheumatic heart disease and several other conditions.[1] Heart Disease (CHD) is a global health problem of massive proportion.[2] Approximately 17.7 million individuals died due to cardiovascular diseases during the year 2015, representing 31 percent of all mortalities in the world. Among these mortalities, about 7.4 million were caused by CHD.[3] Among males aged between 45-54 years, the prevalence of CHD is 2% to 5% and among people aged

between 65 to 74 years it is 11 to 20 percent.[4] In Pakistan, death caused by CHD is 410/100000.[5] Coronary heart disease is a leading cause of disability and mortality among industrialized countries as well as major reason of disease burden among developing countries. [6,7] However, death rate due to CHD has reduced gradually during last decades among western countries but still a significant cause for one-third of all mortalities among people aged 35 years and above.[8]

Oral health is necessary for general health and life quality of an individual. This is a condition of being free from facial and mouth pain, carcinoma of throat and mouth, sores and oral infection, tooth decay/loss, gum disease and several other diseases as well as disorders that restrict the ability of a person in speaking, smiling, biting, chewing and psychosocial welfare. The most prevalent oral diseases are gum disease, dental cavities, oral carcinoma, trauma due to injuries, hereditary lesions and oral communicable diseases.[9] Oral health status has an effect on the chronic diseases. [10] It is greatly recognized that poor oral health is related to a raised risk for coronary heart disease. [11] Study showed that periodontal infection can boost the CVD risk approximately 15 to 19 percent. [12] Periodontitis is limited, persistent infectious disease, that is encouraged by bacteria and damages both the connective tissues and supporting bone of an individual teeth. Among general population, acute periodontitis prevalence has been anticipated at about 5%.[13]

Persistent inflammation plays a considerable role in cardiac diseases pathology. Periodontal infectivity is stated to considerably alter / boost of systemic conditions natural course. Studies have shown an important relationship between CHD and periodontal disease. The relationship between cardiac and periodontal diseases is described through several pathophysiological techniques of microbial and inflammatory type in addition to conventional socio-demographic risk determinants of gender, age, education, marital status, income level, obesity and smoking which are frequent to both cardiac and periodontal diseases. Gum disease like a low-grade persistent infectivity is being recognized a significant risk factor for coronary heart disease.[14] Present study aims to examine association between oral health status of CHD and non-CHD population visiting Sheikh Zaid Hospital Lahore.

MATERIAL AND METHODS

It was cross-sectional descriptive study in which 80 respondents (CHD=40 and non-CHD=40) visiting Sheikh Zaid Hospital Lahore were included. The collected data was analyzed by using SPSS 16.0. Frequencies and percentages were calculated and data was presented in tables and graphs. Bleeding on probing (BOP), periodontal pocket depth (PPD) and tooth loss were assessed like oral health parameters. Verbal consent was taken from respondents. Privacy and confidentiality was maintained at all costs in accordance with principles laid down in Helsinki Declaration of Bioethics.

RESULTS

Among 40 CHD populations, 21 (52.5%) were upto 40 years old while 19 (47.5%) were more than 40 years old. The mean age of CHD populations was 40.68±5.113 years. Likewise among 40 non-CHD populations, 22 (55.0%) were upto 40 years old and 18 (45.0%) were more than 40 years old. The mean age of non-CHD populations was 39.32±6.967 years. Among 40 CHD populations, 23 (57.5%) were males and 17 (42.5%) were females while among 40 non-

CHD populations, 19(47.5%) were males and 21 (52.5%) were females. (Table 1)
Among CHD populations, mean BOP, PPD and tooth loss were 54.67±19.238, 2.31±0.937 and 3.85±3.537, respectively. While among non-CHD populations BOP, PPD and tooth loss were 42.93±23.01, 1.85±0.958 and 2.52±3.357, respectively. The results were found statistically significant as the p-values were ≤0.05. Participants with bleeding on probing ≥20% were 37 (92.5%) in CHD and 30 (75.0%) in non-CHD groups which was statistically significant as the p-value was less than ≤0.05.

Table 1: Socio-demographic characteristics of CHD and non-CHD respondents

Age	CHD	Non-CHD	P-value
≤40 years	21 (52.5%)	22 (55.0%)	
>40 years	19 (47.5%)	18 (45.0%)	0.048
Total	40 (100.0%)	40 (100.0%)	
Mean ± SD	40.68±5.113	39.32±6.967	
Sex			
Male	23 (57.5%)	19 (47.5%)	
Female	17 (42.5%)	21 (52.5%)	0.547
Total	40 (100.0%)	40 (100.0%)	
Education			
Illiterate	16 (40.0%)	14 (35.0%)	
Literate	24 (60.0%)	26 (65.0%)	0.185
Total	40 (100.0%)	40 (100.0%)	
Monthly income			
≤20,000	32 (80.0%)	18 (45.0%)	
>20,000	8 (20.0%)	22 (55.0%)	0.002
Total	40 (100.0%)	40 (100.0%)	
Smoking			
Non-smoker	36 (90.0%)	33 (82.5%)	
Ex-smoker	4 (10.0%)	7 (17.5%)	0.65
Total	40 (100.0%)	40 (100.0%)	

DISCUSSION

Oral health is most significant for an individual to maintain quality of life. Coronary heart disease is a leading health problem worldwide while poor oral health status is related to a raised risk for coronary heart disease. Current study was undertaken to examine the association between oral health status of CHD and non-CHD population. To obtain proper outcomes, 80 respondents were included in the study and divided into two groups (CHD= 40 and non-CHD=40). It was found during study that in both groups most of the respondents were upto 40 years old (CHD= 52.8% and non-CHD=55.0%). This is in contrast to the findings of the study carried out by Hassan and fellows (2005) who asserted that in both groups majority of the respondents were more than 40 years old (CHD= 85.7% and non-CHD=63.1%).[2]

It was found during study that massive portion (57.0%) of CHD respondents were males while majority (52.5%) of non-CHD respondents were females. But the results of the study conducted by Oikarinen and comrades (2009) indicated that in both

groups most of the respondents were males (CHD= 93.2% and non-CHD=93.2%).[15] While the study done by Hassan and fellows (2005) pointed out that in both groups majority was of females (CHD= 73.2% and non-CHD=60.6%).[2]

As far as education is concerned, study showed encouraging results that in both groups majority was of literate participants while family monthly income was found better among non-CHD participants. Smoking is an ill habit that not only harmful for cardiac patients but also for the normal people. It is worth-mentioning here that currently none of the participants was smoking and even 90.0% CHD and 82.0% non-CHD respondents were non-smokers while only 10.0% CHD and 17.5% non-CHD respondents were ex-smokers. The findings of our study exhibited better situation than the study done by Sikka and teammates (2011) who confirmed that 32.0% CHD and 29.0% non-CHD groups respondents were smokers.[16]

When the oral health status was assessed in both groups, study found that poor oral health was higher among CHD group participants. As CHD group participants had more mean sites (54.67±19.238) of BOP than non-CHD group participants (42.93±23.01). Mean PPD was higher (2.31±0.937) among CHD group participants than non-CHD group participants (1.85±0.958). Similarly mean tooth loss was also higher (3.85+3.537) among CHD group participants than non-CHD group participants (2.52±3.357). BOP ≥20% was found among 92.5% CHD and 75.0% non-CHD participants. The results were found statistically significant. Another study undertaken by Bokhari and associates (2011) exhibited same scenario who also asserted that poor oral health was higher among CHD group participants. As CHD group participants had more mean sites (53.66±18.237) of BOP than non-CHD group participants (41.91±24.00). Mean PPD was higher (2.22±0.838) among CHD group participants than non-CHD group participants (1.94±0.757). Similarly mean tooth loss was also higher (3.96+3.233) among CHD group participants than non-CHD group participants (2.40±3.051). BOP ≥20% was found among 95.5% CHD and 77.1% non-CHD participants. The results were found statistically significant.[14]

CONCLUSION

Study concluded that in both groups majority of the participants were upto 40 years old. Educational status was found satisfactory. None of the participants in both groups was current smoker. Poor oral health status was higher among CHD than non-CHD group participants. There is need to conduct more studies on large scale to know the association of oral health status with coronary health diseases.

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