

Association of Smokeless Tobacco with Coronary Heart Diseases

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Abstract

Introduction: Coronary heart diseases (CHDs) are one of the leading killers in our country. Both smoking and smokeless tobacco (SLT) are major risk factors for CHDs. Bangladesh is one of the top-ranked countries in the world regarding SLT users.

Objectives: To determine the relation between smokeless tobacco uses and CHDs.

Materials and Methods: This case-control observational study was conducted at the outpatient department of Combined Military Hospital, Dhaka and National Institute of Cardiovascular Diseases and Hospital from July 2017 to June 2018 among selected 62 adult coronary heart disease patients (Cases) and 62 age and sex-matched non-CHDs patients (Controls).

Results: In Cases; 61.3% of respondents were male and mean age was 51.56 ± 11.46 years. In Controls; 56.5 % respondents were male and mean age was 48.15 ± 12.53 years. Among the CHDs cases 19 (30.6%) was SLT users but in non-CHD cases it was only 10 (16.1%) and this difference was not statistically significant. All the SLT users in CHDs Controls were long-duration users and majority uses Gul or Jorda.

Conclusion: Number of SLT users was more in CHDs Cases than non-CHD Controls but this difference was not statistically significant. Further studies with more sample size are recommended to find the relation between SLT users and CHDS.

Key-words: Coronary heart diseases, Risk factors, Smokeless tobacco.

Introduction

Coronary heart diseases (CHDs) are one of the leading killers in Bangladesh. CHDs have been defined as an impairment of heart function due to inadequate blood flows in the heart, it is an imbalance between the supply and demand of oxygenated blood in comparison to its need, caused by obstructive, sclerotic and biochemical changes to the heart¹. Both smoking and smokeless tobacco are major risk factors for CHDs². Ischaemic heart disease and stroke killed 15 million people

in 2015, have remained the biggest killers globally in the last 15 years³.

Bangladesh is one of the top-ranked countries in the world based on the number of smokeless tobacco (SLT) users. It is of paramount importance to find out the relationship between SLT use and development of CHDs. In our country very few studies are so far carried out to find out effects of different variables of SLT use and CHDs amongst non-smoking adults in Bangladesh. In this study, an effort has been given to find out the effects smokeless tobacco use on CHDs.

Materials and Methods

This case-control study was conducted from July 2017 to June 2018 in outpatients department (OPD) of combined military hospital (CMH), Dhaka and national institute of cardiovascular diseases hospital (NICVD&H), Dhaka, Bangladesh. Sixty-two (62) adult non-smoker diagnosed CHDs patients were selected as Cases and 62 age and sex-matched non-smoker non-CHDs patients were selected as Controls. SLT ranges from unprocessed to processed or manufactured products including Gul, Sada Pata, Zarda and Nossi in this study. Informed written consent was taken from all the study subjects. Data were collected by face to face interviews with pre-tested structured questionnaire. Data were analyzed by SPSS version 16.0 and Chi-square test was done to find out association between different variables.

Results

Majority of the participant were male; in Cases 61.3% and 56.5 % in Controls. Participants mean age, monthly family income and sex distribution are shown in Table-I. Among the participants, 19 (30.6%) were found SLT users in Cases and 10 (16.1%) were in Controls and this difference was not statistically significant (Table-II). Types, pattern and duration of SLT use by the cases and controls are shown in table-III. There was no significant difference among types and pattern of SLT uses between groups but significant ($p < 0.05$) difference was found regarding duration of SLT uses and all the 19 CHDs cases were long-duration SLT users. In cases out of 19 SLT users 7 (36.8%) were attempted to quit SLT uses but only 2 (3.2%) were succeeded to quit. On the other hand in controls out of 10 SLT users 4 (40%) were attempted to quit SLT uses but only 1 (25%) was succeeded (Table-IV).

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Table-I: Socio-demographic characteristics of the participants

Characteristics		Cases (n = 62)	Controls (n = 62)
Sex	Male	38 (61.3%)	35 (56.5%)
	Female	24 (38.7%)	27 (43.5%)
Age in Years (Mean ± SD)		51.56 ± 11.46	48.15 ± 12.53
Monthly Family Income in Taka (Mean ± SD)		23379.03 ± 13286.15	23330.65 ± 1566.25

Table-II: Comparison of Smokeless tobacco uses between Cases and Controls

SLTuses by Participants	Cases (n = 62)	Controls (n = 62)	Statistics
	Frequency (%)	Frequency (%)	
Yes	19 (30.6)	10 (16.1)	$\chi^2 = 3.65$ df = 1 p > 0.05
No	43 (69.4)	52 (83.9)	

Table-III: Distribution of respondents by types, pattern and duration of SLT uses

SLT uses		Cases (n=19)	Controls (n=10)	Statistics
		Frequency (%)	Frequency (%)	
Types	Jarda	7 (36.8)	2 (20)	$\chi^2 = 2.19$ df = 3 p > 0.05
	Sadapata	3 (15.8)	3 (30)	
	Gul	6 (31.6)	2 (20)	
	Nossi	3 (15.8)	3 (30)	
Pattern	Light	11 (57.9)	6 (60)	$\chi^2 = 2.71$ df = 2 p > 0.05
	Moderate	6 (31.6)	1 (0)	
	Heavy	2 (10.5)	3 (30)	
Duration	Short	0	3 (30)	$\chi^2 = 6.35$ df = 1 p < 0.05
	Long	19 (100)	7 (70)	

*Fisher's exact test was done

Table-IV: Distribution of respondents by their attempt to quit SLT and success status

Attributes		Group-A (n=19)	Group-B (n=10)	Statistics
		Frequency (%)	Frequency (%)	
Attempted to quit SLT	Yes	7 (36.8)	4 (40)	$\chi^2 = 0.03$ df = 1 p > 0.05
	No	12 (63.2)	6 (60)	
Succeeded to quit SLT	Yes	2 (28.6)	1 (25)	$\chi^2 = 0.02$ df = 2 p > 0.05
	No	5 (71.4)	3 (75)	

*Fisher's exact test was done

Discussion

In this study among CHDs cases 61.3% and in controls, 56.5% was male which commensurate with the health-seeking trend in our country⁴. In a similar study conducted by Rahman MA et al⁵, male participants were 49.7%, both in cases and controls. In another study by Islam KN et al⁶ stated that amongst the CHDs participants, 73.3% were female. Mean age in CHDs cases and non-CHDs cases were 51.56+11.46 and 48.15+12.53 years respectively. A South-East Asian survey conducted by Mamun MA et al⁷ depicted that, the mean age (51.9 years) for the occurrences of CHDs among Bangladeshi population was

consistent with this study. Among the CHDs cases SLT users were 30.6% but in non-CHDs cases it was 16.1%. In a cross-sectional study by Flora MS et al⁸, the prevalence of SLT uses in urban area was 23%, which conform to the findings of this study. Another study by Rahman MA et al⁹ stated prevalence of 40.6%, which also included the smokers, might be the cause of high prevalence rate due to dual user. In their study Palipudi KM et al¹⁰ explored that the prevalence of SLT is almost similar among both males (26.4%) and females (27.9%). Countries with a low prevalence of SLT use ranging from 5-10% include Algeria, Mauritania and Tunisia¹¹. The prevalence was 27.9% as stated by Sinha DN et al, in association between SLT use and CHDs, which are alike with this study findings^{12,13}. Karlsson C et al mentioned prevalence of SLT in Myanmar was 21%¹⁴. However, this difference of SLT use among the cases and controls were found statistically significant (p < 0.05) in this study. In different case-control and cohort study were found positive tobacco and cardiovascular disease in low and middle-income countries reported significantly greater risk for acute coronary events in SLT users¹⁵.

It was found in the study that, majority of the cases i.e., 36.8% were used jarda, 31.6% used gul and sadapata or nossi used by 15.8% each one. On the contrary, among all controls both sadapata and nossi were used by 30% and 20% were used jarda and gul equally. According to Huque R et al., the prevalence of jarda was 24.3%¹⁶. Prevalence of SLT among low socioeconomic populations, a cross-sectional analysis conducted by Ahmed NU et al found that maximum of the participants used jarda followed by sadapata in Chakaria region of Bangladesh¹⁷. In India, agent of choice was khoinee, followed by jarda and ghutka, stated by Sinha DN et al, in a study¹⁸. According to the WHO Global Adult Tobacco Survey report in Thailand betel quid with tobacco was used by majority of population, followed by snuff by mouth¹⁹. However, this difference of type of SLT use between cases and controls was not statistically significant (p > 0.05) in this study. Chewing tobacco was the mode of choice of SLT consumption among majority i.e. (52.6%) of the cases, (31.6%) used snuff by mouth and the rest (15.8%) were used snuff by nose depicted in this study. Similarly, among the controls, most (50%) of the SLT were used by chewing, (30%) snuffing by nose and the rest, (20%) snuffed by mouth were found. Difference of mode of SLT use between cases and controls was not statistically significant (p > 0.05) in this study. According to Rahman MA et al., majority of the SLT users used to take it by chewing with betel quid in Bangladesh, analogous to the finding of this study. The use of oral and nasal SLT for 30 minutes leads to a continuous increase in blood nicotine concentration levels that are maintained for up to 2 hours²⁰.

Basing on the frequency of SLT uses, only among the cases, (17.7%) were light SLT users, (9.7%) were moderate and rest (3.2%) was heavy SLT user. On the other hand, (9.7%) of the controls were light user of SLT. However, this difference of

frequency regarding SLT used among the type of participants was not statistically significant ($p > 0.05$). Regarding duration of SLT use, among the cases (30.6%) were found used SLT for long duration and among the controls, (11.3%) were used SLT for long duration. The difference in duration of SLT used among the type of participants was statistically significant ($p < 0.05$).

Conclusion

Number of SLT users was more in CHDs cases than non-CHD cases but this different was not statistically significant. Further studies with more sample size are recommended to find the relation between SLT users and CHDS.

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