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"Socio-demographic and clinical status of patients with coronary artery disease treated in a tertiary care hospital of Bangladesh"

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Abstract
Background: *Coronary artery disease (CAD is one of the most common heart diseaseswhich happens when coronary arteries struggle to supply the heart with enough blood, oxygen and nutrients. CAD is usually caused by plaque buildup in the wall of the arteries that supply blood to the heart. In Bangladesh, we have very limited research-based data regarding the socio-demographic and clinical status of patients with coronary artery disease (CAD).*
Aim of the study:*The aim ofthis study was to assessthe socio-demographic and clinical status of patients with coronary artery disease (CAD).*
Methods: *This prospective observational study was conducted in the Department of Cardiology, Shaheed Ziaur Rahman Medical College, Bogura, Bangladesh during the period from January 2021 to December 2021. In total 100confirmed coronary artery disease (CAD) patients were included as the study subjects for this study.This study was approved by the ethical committee of the mentioned hospital.A predesigned questionnaire was used in data collection.All data were collected, processed and analyzed by using MS Office and SPSS version 23 programs as per need.*
Results:*In this study, among total 100 participants, 68% were male and the rest 32% were female. The mean (±SD) age and BMI of the participants were 47.28±11.87 years and 23.68± 2.44 Kg/m2 respectively. Majority of the participants were from rural areas and illiterate participants were only 18%.The waist and hip circumferences of the participants were found 89.81±10.32 cm and 106.82±18.56 cm respectively.The mean (±SD) total cholesterol (mg/dl), S creatinine (mg/dl) and ESR (mm in 1st hour) of the participants were found as 177.69±31.55, 1.6±0.04 and 26.55±5.17 respectively.*
Conclusion: *The frequency of coronary artery disease among male populationis found as alarming. The abnormalities in waist or hip circumferences, total cholesterol (mg/dl), S creatinine (mg/dl) and ESR (mm in 1st hour) of patients may be considered as some potential indicator for coronary artery diseases.*

Keywords:*Demographic,Clinical status,Coronary artery disease, CAD, Cardiology.*

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I. Introduction

Although aremarkable advancement in the prevention as well as management of coronary artery disease (CAD) has occurred in recent years,till now it is the primary cause of huge mortality and morbidity worldwide. [1]Clinical as well as demographic characteristics, risk factors, management and the treatment

outcomes of patients with CAD have changed remarkably over the years [2].In the year of 1990, coronary artery disease (CAD) accounted for 28% of world's 50.4 million deaths and 9.7% of the 1.4 billion lost disability adjusted life years. [3]By the year of 2020, the world's population will grow to 7.8 billion and 32% of all deaths will be caused by CAD [4]. Globally, the South Asian countries are considered among the highest incidence of CAD (coronary artery disease)[5]. The global burden of disease study suggests that, by 2020, this part (South Asian countries) of the world will have more people with atherosclerotic coronary artery disease (CAD) than in any other region [6]. Data related to different aspects of coronary artery disease (CAD) in Bangladesh are inadequate but it is highly prevalent in Bangladesh [7].While the death rates related to coronary artery disease have been declining during the past three decades in the western countries, these rates are rising in Bangladesh. [3]In some studies of demographic and clinical status of CAD, diabetes, low high-density lipoprotein-cholesterol (HDL-C), metabolic syndrome and smoking were fond as the potential risk factors for such diseases.[8, 9] In a gender comparison study, it was found that, diabetes increases the risk for coronary artery disease among women by 3 to 7 times, in comparison to only a 2 to 3 times increased risk in diabetic men.[10] It was also found that, in patients with metabolic syndrome, the relative risk for development of coronary artery disease was2.63 in women as compared with 1.98 in men.[11]

II. Methodology

This was a prospective observational study which was conducted in the Department of Cardiology, Shaheed Ziaur Rahman Medical College, Bogura, Bangladesh during the period from January 2021 to December 2021. In total 100 confirmed coronary artery disease (CAD) patients were included as the study subjects for this study. This study was approved by the ethical committee of the mentioned hospital.The clinical presentations of patient were categorized as per American College of Cardiology/American Heart Association (ACC/AHA) definitions [12]. As per the exclusion criteria of this study, patients with concomitant valvular heart disease and cases associated with cardiomyopathy were excluded.A predesigned questionnaire was used in data collection.Age, gender, CAD risk factor profile, status of dyslipidemia, cigarette/bidi smoking history of all the participants were recorded. Besides these, presence of hypertension, family history of CAD, obesity defined using BMI, left ventricular ejection fraction,hematologic indices, and treatment strategy were recorded. $P < 0.05$ were considered as statistically significant. All the statistical analyses were carried out via Statistical Package for Social Sciences version 20 (SPSS, IL, Chicago Inc., USA).

III. Result

In this study, among total 100 participants, 68% were male whereas the rest32% were female. So male participants were dominating in number and the male-female ratio was 2:1. The mean (±SD) age and BMI of the participants were 47.28±11.87 years and 23.68± 2.44 Kg/m2 respectively. Majority of the participants were from rural areas and illiterate participants were only 18%.The waist and hip circumferences of the participants were found 89.81±10.32 cm and 106.82±18.56 cm respectively. The mean (±SD) total cholesterol (mg/dl), S creatinine (mg/dl) and ESR (mm in 1st hour) of the participants were found as 177.69±31.55, 1.6±0.04 and 26.55±5.17 respectively. In this study, as the major risk factors of CAD: hypertension, smoking & tobacco use, obesity, ischemic heart disease and diabetes were found among 29%, 26%, 23%, 20% and 12% cases respectively. Besides these Dyslipidemia, family history of CAD, previous CABG, OCP (Oral contraceptives), menopause and alcohol were associated with some participants.

Table 1: Socio-demographic status of participants(N=100)

Characteristics	Mean ±SD/n (%)	
Age of the participants		
Mean age (Years)	47.28±11.87	
Gender distribution of participants		
Male	68	68%
Female	32	32%
BMI of the participants		
BMI (Kg/m2)	23.68± 2.44	
Residential status of participants		
Urban	42	42%
Rural	58	58%
Educational status of participants		
Illiterate	18	18%

Secondary	42	42%
Higher secondary	29	29%
Graduation and above	11	11%

Table 2: Clinical findings among participants(N=100)

Characteristics	Mean ±SD
Waist circumference	89.81±10.32
Hip circumference	106.82±18.56
FBS (mmol/l)	7.12±0.75
HbA1C	6.74±0.62
Total Cholesterol (mg/dl) (%)	177.69±31.55
LDL (mg/dl)	112.99±16.22
HDL (mg/dl)	37.4±7.39
TG (mg/dl)	190.49±28.67
S creatinine (mg/dl)	1.6±0.04
ESR (mm in 1st hour)	26.55±5.17

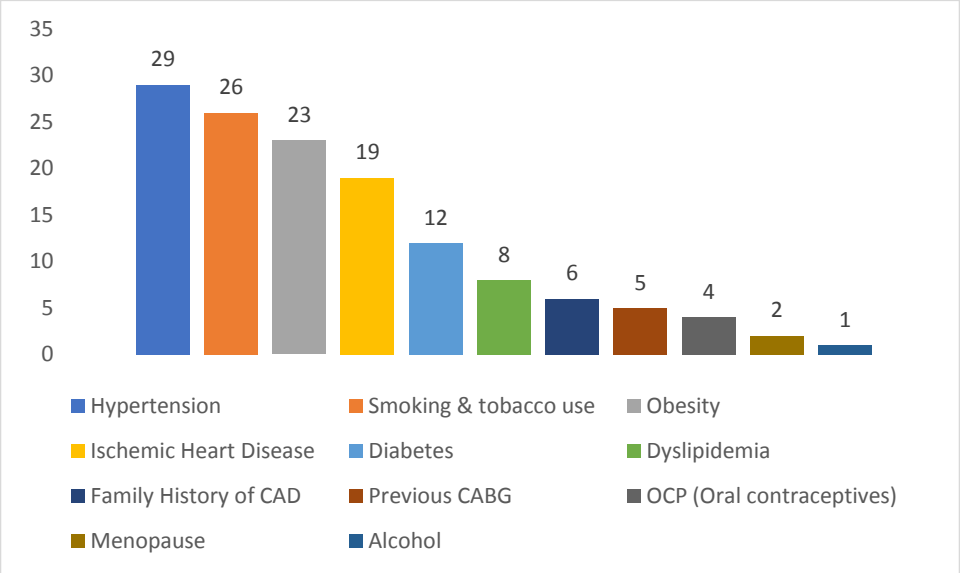

Figure1: Risk factor distribution among participants(N=100)

IV. Discussion

The aim of this study was to assess the socio-demographic and clinical status of patients with coronary artery disease (CAD).The epidemiological studies have revealed that, the prevalence of coronary artery disease is increasing along with the rising prevalence of conventional risk factors for CAD in Bangladesh.In this study, among total 100 participants, 68% were male whereas the rest 32% were female. So male participants were dominating in number and the male-female ratio was 2:1. The mean (±SD) age and BMI of the participants were 47.28±11.87 years and 23.68± 2.44 Kg/m2 respectively.The mean age of our study subjectswas comparable to 52±10. [13] years in a study reported by Maqbool Jafary et al [14] in Pakistan and 62±5 years in COURAGE trial [15] and 58±11 years by Sahed et al[16] conducted in USA.The gender distribution, males 78.5% versus females 21.5% of a study population can considered with our findings, which were nearabout similar to INTERHEART study and its South Asian cohort (overall male, 76% and South Asian cohort, 85%) [17].In this study, as the major risk factors of CAD: hypertension, smoking & tobacco use, obesity, ischemic heart disease and diabetes were found among 29%, 26%, 23%, 20% and 12% cases respectively.Diabetes mellitus (T2DM) alone was a risk factor in 7.13% patient and combined with hypertension and diabetes mellitus were been in 22.25% patients. [3]Although in our study T2DM was not found as a major risk factor, diabetes mellitus is well known to have an adverse influence on the prognosis of patients with acute myocardial infarction [14]. In the study [3] 36.13% patients were hypertensive. The prevalence of hypertension in South Asian cohort of INTERHEART study [18] (31.1%) is comparatively lower than this study but is similar to Akanda et al [19] (35%).

Limitation of the study:

This was a single centered study with a small sized sample. So, findings of this study may not reflect the exact scenario of the whole country.

V. Conclusion & Recommendation

The frequency of coronary artery disease among male population is found as alarming. The abnormalities in waist or hip circumferences, total cholesterol (mg/dl), S creatinine (mg/dl) and ESR (mm in 1st hour) of patients may be considered as some potential indicator for coronary artery diseases.For getting more specific findings we would like to recommend for conducting similar more studies with larger sized samples in several places.

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Conflict of interest: None declared.
Ethical approval: The study was approved by the Institutional Ethics Committee.

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