Research Article

Clinical Characteristics, Risk Factors and Angiographic Profile of Patients Undergoing Coronary Angiography in A Tertiary Care Hospital

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Abstract

Background: In both developed and developing countries, coronary artery disease is one of the most common causes of huge mortality and morbidity. Considering the increasing burden of coronary artery disease, to control the mortality as well as morbidity of this disease, identifying risk factors, studying the clinical profile and angiographic pattern of such patients is very important.

Aim of the Study: The aim of this study was to accumulate the clinical characteristics, risk factors and angiographic profile of patients undergoing coronary angiography.

Methods: This prospective observational study was conducted in the department of Cardiology, Shaheed Ziaur Rahman Medical College & Hospital Bogura, Bangladesh during the period from January 2020 to June 2022. In total 165 patients undergoing coronary angiography in the mentioned hospital were enrolled in this study as study subjects. As per the inclusion criteria of this study, patients from several age groups of both genders were included as the study subjects. A predesigned questioner was used in collecting data regarding all demographic, clinical and diagnostic findings.

Results: In this study, as the clinical diagnostic findings of participants UA, NSTEMI, anterior STEMI, inferior STEMI and CSA were found among 42%, 16%, 14%, 13% and 15% cases respectively. As the risk factors, DM was found in 18% cases and HTN was found in 17% cases which were noticeable. Besides these, smoking, family history and hypothyroidism were found among 10%, 2% and 1% participants respectively. Finally, in analyzing the coronary angiography findings of our study people we observed that, 35% patients were with normal coronary artery. Among a large proportion of patients, SVD was found which were in 31% (n=52) cases. Besides these, DVD, TVD, 'TVD & LM' and minor CAD were found in 17%, 13%, 2% (n=4) and another 2% (n=3) cases respectively.

Conclusion: In this study, in clinical diagnosis, unstable angina was found as the most common presentation. DM as well as HTN were very frequent risk factors among CAD patients. As the coronary angiographic findings, although more than one-third patients were found with normal coronary artery, a large proportion of patients were found with SVD, DVD and TVD. In some cases, 'TVD & LM' and minor CAD were also detected by CAG.

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Introduction

Coronary artery disease is one of the most common causes of mortality and morbidity in both developed as well as developing countries [1]. Coronary artery disease (CAD) tends to occur at a younger age, with more extensive angiographic involvement contributed genetic, conventional, metabolic as well as nonconventional risk factors [2]. It has also been found that, mortality rates of CAD will double from 1990-2020 with approximately 82% of the increase attributable to the developing world [1]. Socio-economic changes that have occurred with industrialization and urbanization have probably led to the higher prevalence of the main cardiovascular risk factors [3, 4]. With the wide variability in clinical presentations especially among different age group population and between the two sexes, there are also some differences regarding risk factors like hypertension, dyslipidemia, Diabetes Mellitus, smoking, and alcohol consumption [1]. Since the last few years, worldwide, there has been a significant increase in the frequencies of people undergoing coronary angiography (CAG) and now coronary angiography has become a part of routine investigation and treated as the gold standard for diagnosis of coronary artery disease [1]. During the past 50 years a great progress in identifying a number of factors associated with coronary heart disease like life style, biochemical and genetic factors have been defined and described [5]. Besides these, the rise and subsequent decline in coronary artery disease (CAD) epidemic in almost all industrialized country during the later half of twentieth century has been well documented [6]. Significant differences in the prevalence of CAD (coronary artery disease) exist with respect to age, gender and ethnicity [1]. On the other hand, now a day, cardiovascular diseases (CVD) have emerged as a major health burden in developing countries [7]. We hope, the findings of this studies may be helpful in assessing the current situation of CAD in Bangladesh and its diagnosis findings.

Methodology

This prospective observational study was conducted in the department of Cardiology, Shaheed Ziaur Rahman Medical College & Hospital Bogura, Bangladesh during the period from January 2020 to June 2022. In total 165 patients undergoing coronary angiography in the mentioned hospital were enrolled in this study as study subjects. Proper written consents were taken from all the participants before data collection. The whole intervention was conducted in accordance with the principles of human research specified in the Helsinki Declaration [8] and executed in compliance with currently applicable regulations and the provisions of the General Data Protection Regulation (GDPR) [9]. As per the inclusion criteria of this study, patients from several age groups of both genders were included as the study subjects. On the other hand, according to the exclusion criteria of this study, patients with previous angina, MI or coronary revascularization for more than two weeks and patients with prior cardiac pathology like valvular heart disease, cardiomyopathy and pericardial disease were excluded. After taking informed written consent from all the participants, angiography was done. For angiography, femoral or radial route of patients were used as per the suggestion of respective physician.

For angiography, femoral route was used in 109 (66%) cases and radial route was used in 56 (34%) cases. Along with coronary angiographic findings, all the demographic and clinical data of the participants were recorded. A predesigned questioner was used in data collection. All data were processed, analyzed and disseminated by using MS Excel and SPSS version 23 program as per necessity.

Result

In this study, among total 165 participants, 76% were male whereas the rest 24% were female. So male participants were dominating in number and the male-female ratio was 3:1. The mean ± SD age of the participants was 47.74 ±12.23 years. Among total participants, 79% were from lower class families whereas the rest 21% were from middle class families according to monthly family income. As the laboratory findings among participants, we observed that, the mean ±SD FBS (mg/dl), S. Creatinine (mg/dl), LVEF (%), LVIDD (mm) and Hb (gm/dl) were found as 7.74 ±2.94, 1.08 ±0.26, 59.68 ±9.46, 48.08 ±5.81 and 13.30 ±1.76 respectively. Besides these, as the clinical diagnostic findings of participants UA, NSTEMI, anterior STEMI, inferior STEMI and CSA were found among 42%, 16%, 14%, 13% and 15% cases respectively. In this study as the risk factors, DM was found in 18% cases and HTN was found in 17% cases which were noticeable. Besides these, smoking, family history and hypothyroidism were found among 10%, 2% and 1% participants respectively. Finally, in analyzing the coronary angiography findings of our study people we observed that, 35% patients were with normal coronary artery. Among a large proportion of patients, SVD was found which were in 31% (n=52) cases. Besides these, DVD, TVD, 'TVD & LM' and minor CAD were found in 17%, 13%, 2% (n=4) and another 2% (n=3) cases respectively.
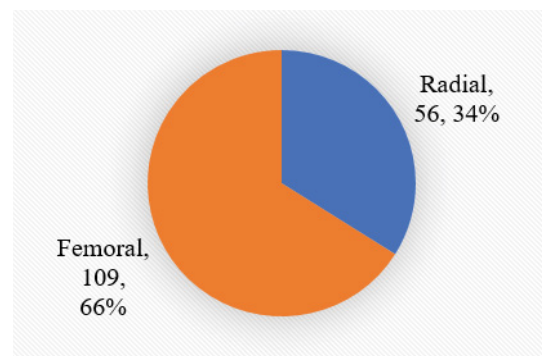

Figure 1: CAG route distribution among participants (N=165).

Table 1: Sociodemographic status of participants (N=165).

Characteristics	n	%
Gender distribution		
Male	126	76%
Female	39	24%
Mean ± SD age of participants		
Age in year	47.74 ±12.23	
Family status of participants		
Lower	130	79%
Middle	35	21%

Table 2: Baseline laboratory findings among participants (N=165).

Variables	Mean ±SD
FBS (mg/dl)	7.74 ±2.94
S. Creatinine (mg/dl)	1.08 ±0.26
LVEF (%)	59.68 ±9.46
LVIDD (mm)	48.08 ±5.81
Hb (gm/dl)	13.30 ±1.76

Table 3: Clinical diagnostic findings of participants (N=165).

Characteristics	n	%
DM	30	18%
HTN	28	17%
Smoking	17	10%
Family history	4	2%
Hypothyroidism	2	1%

Table 4: Distribution of risk factors among participants (N=165).

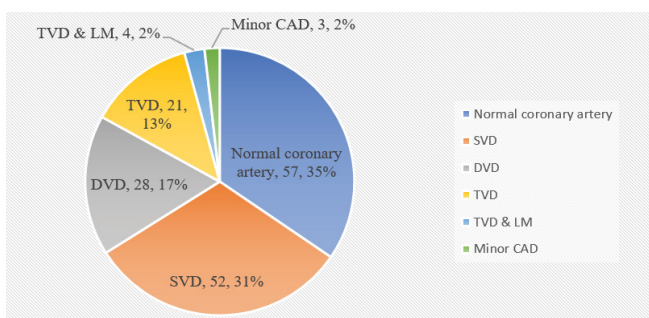| Characteristics	n	%
DM	30	18%
HTN	28	17%
Smoking	17	10%
Family history	4	2%
Hypothyroidism	2	1%

Figure 2: Findings of CAG among participants (N=165).

Discussion

The aim of this study was to accumulate the clinical characteristics, risk factors and angiographic profile of patients undergoing coronary angiography. The mean ± SD age of the participants was 47.74 ±12.23 years which is comparable to other studies those were, 56 ± 13 years [10] and 58±11years by Sahed, et al. [11]. In another study [12] study subjects were between 22 to 76 years of age with the mean age 50.15±8.8. In this study, among total 165 participants, 76% were male whereas the rest 24% were female. So male participants were dominating in number and the male-female ratio was 3:1. In a study male were 79.4% and female participants were 20.58% and the mean age was 55 years (+12.11) [13]. Among our patients as the laboratory findings, we observed that, the mean ±SD FBS (mg/dl), S. Creatinine (mg/dl), LVEF (%), LVIDD (mm) and Hb (gm/dl) were found as 7.74 ±2.94, 1.08 ±0.26, 59.68 ±9.46, 48.08 ±5.81 and 13.30 ±1.76 respectively. In this study as the risk factors, DM was found in 18% cases and HTN was found in 17% cases which were noticeable. Besides these, smoking, family history and hypothyroidism were found among 10%, 2% and 1% participants respectively. In another study, as risk factors, dyslipidemia was found in 37.96% patients, obesity in 29.64% patients and family history of CAD was found as significant among 9.73% cases [14]. But similar to ours, hypertension was observed as the most prevalent risk factor (14.8%) followed by diabetes in 10.5%, smoking in 2.8% and dyslipidemia in 2.4% [15]. In another study, [12] the most prevalent risk factors were smoking in 60% and dyslipidaemia in 60%, HTN in 35%, DM in 10% patients. Finally, in analyzing the coronary angiography findings of our study people we observed that, 35% patients were with normal coronary artery. Among a large proportion of patients, SVD was found which were in 31% (n=52) cases. Besides these, DVD, TVD, 'TVD & LM' and minor CAD were found in 17%, 13%, 2% (n=4) and another 2% (n=3) cases respectively. In another study, among 150 cases, SVD was the most prevalent which was seen in 68.7% cases, followed by DVD in 22.6% and TVD in 8.7% cases and among the SVD cases, location of stenosis was seen in LAD in 41.3%, LCX in 10%, RCA in 15.3% and left main coronary artery in 2% cases [16]. An Indian study showed SVD in 57.1% of the patients followed by DVD in 11.5% and TVD in 7.1% cases [17]. Khadkikar GD, et al. found SVD, DVD, TVD and no vessel disease among 50%, 13.6%, 4.5% and 31.8% patients respectively [18]. Colkesen AY, et al. in their study on CAD in young adults also found LAD was the most commonly involved vessel, followed by RCA, LCX, and LMCA [19].

Limitation of the Study

This was a single centered study with small sized samples. Moreover, the study was conducted at a very short period of

time. So, the findings of this study may not reflect the exact scenario of the whole country.

Conclusion & Recommendation

In this study, in clinical diagnosis, unstable angina was found as the most common presentation. DM as well as HTN were very frequent risk factors among CAD patients. As the coronary angiographic findings, although more than one-third patients were found with normal coronary artery, a large proportion of patients were found with SVD, DVD and TVD. In some cases, 'TVD & LM' and minor CAD were also detected by CAG. As per the performance of CAG, we can conclude that, coronary angiography may be considered as the most prominent detective method for CAD.

Funding

Conflict of Interest

None declared.

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