Original Research Article

Age-related differences in risk profile among Bangladeshi adults suffering from stable angina

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ABSTRACT

Background: We aimed to find out the age-related differences in risk profile among Bangladeshi adults suffering from stable angina.
Methods: An observational study was conducted in three different districts in Bangladesh (Feni, Noakhali and Chandpur) through the medical camps during the period from 1st February 2018 to 31st July 2018. Data of 764 stable angina patients was analysed.
Results: The male to female ratio in both groups was 4:1. The mean age of the study population in younger group was 34.0 ± 5.2 years and in older group 57.0 ± 6.3 years. Smokers were more in younger group (70.0% vs. 46.0%; p=0.032). Hypertension was less in the younger group (38.0% vs. 58.0%) (p=0.045). Presence of diabetes was higher in the older age group (34.0% vs. 4.0%) (p=0.001). The total cholesterol was higher in older group (182.9 ± 33.1) vs. (171.1 ± 24.8 mg/dl) (p=0.047). 68% of patients of older group and 38% of younger group had stenosis in left anterior descending artery (p=0.003). The involvement of left circumflex and right coronary artery in older age group were higher (56% and 66% respectively) than those in younger group (36% and 40% respectively) (p=0.045 and p=0.009). Patients had multiple risk factors like hypertension, family history of cardiovascular disease, smoking and ischemic heart disease (IHD).
Conclusions: This study found that the incidence of IHD is very among the district-level diabetic patients of Bangladesh and this incidence increases with the rise of age.

Keywords: Diabetes, Ischemic heart disease, Age groups, District-level, Bangladesh

INTRODUCTION

Since the Framingham study, epidemiology has consistently shown that diabetes confers an increased risk for ischemic heart disease (IHD) and cardiac mortality.[1-5] Diabetes is regarded as a strong risk factor for the development of IHD. Patients with diabetes have 2- to 4-fold greater risk of developing IHD than non-diabetic patients.[3]

Diabetic patients exhibit an increased risk for development of atherosclerosis leading to IHD for many reasons, including metabolic factors, like hyperglycaemia, dyslipidemia and insulin resistance, which lead to endothelial cell, vascular smooth muscle dysfunction, impaired platelet function and abnormal coagulation.[6-8] Diabetic patients tend to exhibit other risk factors for Coronary artery disease (CAD), like hypertension and obesity. Patients with diabetes have

lipid-rich atherosclerotic plaques, which are more vulnerable to rupture than the plaques seen in non-diabetic patients.[9-10] Yoo et al described an overall increase in atherosclerotic burden and a 3.5-fold higher risk of coronary stenosis that was independent of other cardiovascular risk factors in diabetic patients.[11]

Estimates of IHD incidence in diabetic patients vary across studies and countries. Source data are remarkably heterogeneous with regard to selection criteria and risk assessment, and few observational studies provide information on the natural course of IHD in patients who periodically refer to hospital-based outpatient clinics. Several studies have reported a higher prevalence of IHD in diabetic patients compared to non-diabetic subjects. However, there is lack of adequate data on Bangladesh regarding this issue. Hence, we aimed to estimate the incidence of IHD among the diabetic patients of three districts of Bangladesh.

METHODS

This is an observational study conducted in three different districts (Feni, Noakhali and Chandpur) in Bangladesh during the period from 1st January 2018 to 31st July 2018. Patients were enrolled for this study through medical camps. Purposive sampling technique were adopted for the study. When diabetic patients came to the camps, data on gender, age, existence of risk factors and diagnosis of IHD were recorded in pre-defined case report form for each of the patients. Informed written consent were taken from the study participants and taken approval from the camp organizer. Diabetic patients were identified by the history of taking anti-diabetic medication. Hypertension was defined as systolicblood pressure$\geq$140 mmHg or diastolic bloodpressure$\geq$90 mmHg or on anti-hypertensive medication. IHD was diagnosed by ECG findings of either ST-segment depression or T-wave inversion or ST-segment depression with T-wave inversion.

Data were checked and only the forms filled with all required data were entered in a database. All analyses were done using statistical package for the social sciences (SPSS) software version 18 (Chicago, IL, USA).

RESULTS

Data of 286 diabetic patients was analyzed (mean age 49.7±12.8 years, 166 male and 120 female). Patients had multiple risk factors. 59.4% had hypertension, 30.8% had family history of cardiovascular disease and 18.2% patients were smokers (Figure 1).

Among the 286 diabetic patients, IHD was diagnosed in 55 patients (19.2%). IHD was more prevalent with the higher age groups (Table 1).
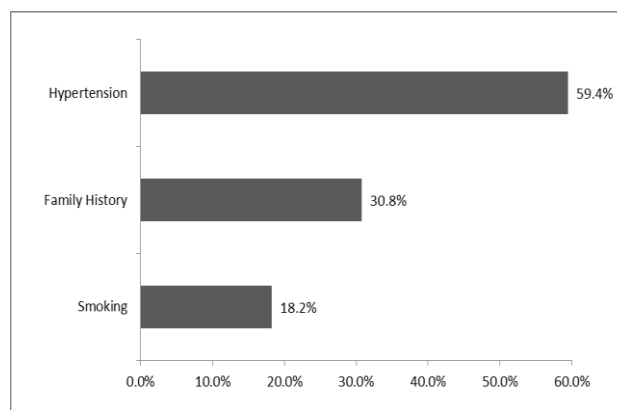

Figure 1: Risk factors among the patients (n=286).

Table 1: Incidence of IHD among diabetic patients by age groups.

Age groups (in years)	Patients number	Patients with IHD	Incidence of IHD (%)
20-39	65	4	6.2
40-59	142	19	13.4
60-79	75	29	38.7
≥80	4	3	75.0
Total	286	55	19.2

DISCUSSION

This was a multi-center study and found that the incidence of IHD is very among the district-level diabetic patients of Bangladesh and this incidence increases with the rise of age. A number of studies have also reported similar findings.[2-5]

Patients of this study had multiple risk factors. 59.4% had hypertension, 30.8% had family history of cardiovascular disease and 18.2% patients were smokers. These findings are consistent with previous studies performed in Bangladesh.[12-15]

Limitations

This was a multi-center study but in similar location. Sample size of the study was limited.

CONCLUSION

This study found that the incidence of IHD is very among the district-level diabetic patients of Bangladesh and this incidence increases with the rise of age. These findings could be useful to draw the attention of health authorities towards district-level diabetic patients and to adopt preventive strategies for them against IHD. Nationwide and large-scale studies are recommended to obtain more information regarding this matter.

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