AUCTORES
Globalize your Research

Journal of Clinical and Laboratory Research
Samiul Bashir *

Open Access

Research Article

Risk factors of Cardio Vascular Disease among Diabetic Patients

Samiul Bashir [1]*, Md Sohel Rana [2], Shib Shankar Das [3], Najnatul Farzana Sikder [4], Moazzam Hossian [5], Ripon Chandra Shil [6], Sohrab Hossain [7], Ramzan Ali [8], Humayun Rashid Shahin [9], Tanzila Akter [10]

[1]Medical Laboratory Technologist, Institute of Health Technology, Kurigram.

[2]Medical Laboratory Technologist, National Institute of Preventive and Social Medicine.

[3]Medical Technologist Laboratory, Upazila Health Complex, Serajdikhan, Munshigonj.

[4]Medical Technologist Laboratory, Upazila Health Complex, Ukhiya, Cox's Bazar.

[5]Medical Technologist Laboratory, Upazila Health Complex, Daganbhuiyan, Feni.

[6]Medical Laboratory Technologist, National Institute of Neurosciences & Hospital.

[7]Medical Technologist (Lab), Upazila Health Complex, Dhamoirhat, Naogaon.

[8]Medical Laboratory Technologist. Dhaka Medical College Hospital.

[9]Medical Technologist Laboratory, Upazila health complex, Teknaf, Cox's Bazar.

[10]Medical Technologist, National Institute of Laboratory Medicine, Agargaon.

***Corresponding Author:** Samiul Bashir., Medical Laboratory Technologist, Institute of Health Technology, Kurigram.

Received Date: September 02, 2024 | **Accepted Date:** September 17, 2024 | **Published Date:** October 01, 2024

Citation: Bashir S., Rana S., Shib S Das., Najnatul F Sikder., Hossian S., et al, (2024), Risk factors of Cardio Vascular Disease among Diabetic Patients, *Journal of Clinical and Laboratory Research*, 7(8); **DOI:10.31579/2768-0487/151**

Abstract

Cardiovascular disease is a major health problem throughout the world and a common cause of premature morbidity and mortality. According to World Health Organization, CVDs are the number one cause of death globally. It has long been known that excessive alcohol intake is associated with increased risk for hypertension, stroke, coronary artery disease, and other forms of CVD; however, there is also a robust body of evidence in a range of populations that suggests that light to moderate intake of alcohol may reduce the risk of CHD. Indeed, research suggests that the relationship between alcohol intake and CVD outcomes. The aim of the study was to identify risk factors of cardio vascular disease among patients suffering from diabetes mellitus. The cross-sectional research was conducted at Sirajganj Diabetic Hospital from 20 July to 19 November 2023 among 600 patients attending outdoor. Convenient sampling was applied. Data were collected by Self-Administered semi-structured questionnaire. Statistically significant association was found between tobacco consumption, alcohol consumption and blood pressure status. Effective health awareness program can be instituted on regular basis.

Key words: risk factors; cardio vascular disease; diabetic patients

Introduction

World Health Organization states cardiovascular diseases are becoming a major health burden in developing countries. In the year 2000, 16.7 million people died from cardiovascular disease, accounting for 30.3% of all deaths worldwide; more than half these deaths were in developing countries.1 South Asia represents more than a quarter of the developing world, and is likely to be strongly affected by the increase in cardiovascular disease, for several reasons.2 First, people from south Asia are known to have a high coronary risk; this tendency has been well recorded in studies of expatriate south Asians.2 The control of diabetes warrants changes at several levels, and would need the behavioral, social, political, and economic will to forge such changes among individuals, communities, health systems, and policy makers. According to the World Health Organization, diabetes, cardiovascular diseases are the leading cause of death. Diabetes increases the risk of cardiovascular diseases. In 2008, 30% of all global death is attributed to cardiovascular diseases. Death caused by cardiovascular diseases are also higher in low and middle-income countries as over 80% of all global death caused by cardiovascular diseases occurred in those countries. It is also estimated that by 2030, over 23 million people will die from cardiovascular

diseases annually. According to the latest WHO data published in April 2011 Coronary Heart Disease Deaths in Bangladesh reached 163,769 or 17.11% of total deaths. It is important to take preventive measures for reduction of large number of premature mortality and morbidity caused by diabetes.

Methods

The cross-sectional research was conducted at Sirajganj Diabetic Hospital from 20 July to 19 November 2023 among 600 patients attending outdoor. Convenient sampling was applied. Data were collected by Self-Administered semi-structured questionnaire. All questionnaire was pre tested before going to actual study population. All questionnaire was checked for its completeness and correctness. Data were entered in SPSS data sheet (version 16.0). Sample frequency distribution, percentage, mean, standard deviation & appropriate statistical tools were used. Data were checked and rechecked for its completeness and accuracy.

Results

Age	Tobacco consumption		Total	p value
	Yes	No		
20-40	163	124	287	0.000
41-60	141	118	259	
>60	46	8	54	
Total	350	250	600	

Table 1: Tobacco consumption.

Age	Alcohol consumption		Total	P value
	Yes	No		
20-40	153	134	287	0.000
41-60	91	168	259	
>60	8	46	54	
Total	252	348	600	

Table 2: Alcohol consumption.

Age	Blood pressure level				Total	p value
	Normal	Pre-hypertension	Stage 1 hypertension	Stage 11 hypertension		
20-40	186	65	28	8	287	0.000
41-60	180	33	42	4	259	
>60	24	6	11	13	54	
Total	390	104	81	25	600	

Table 3: Blood pressure.

Discussion

Bangladesh national survey on NCD risk factors 2010 showed 17.6% people overweight, 21.7% had increased waist circumference, prevalence of hypertension 17.9% and diabetes 3.9%.3 A systematic review and meta-analysis in Bangladesh showed the pooled hypertension and type 2 diabetes mellitus prevalence were 13.7% and 6.7% respectively.4 Another hospital based study in Bangladesh showed lipid level disorder, hypertension, heart failure, ischemic heart disease were associated with diabetes.5 In China, CVD accounted for nearly 40% of all deaths in 1994.6 Furthermore, CVD incidence and mortality in China are projected to increase substantially during the next 20 years. Although the prevalence of some CVD risk factors has decreased in economically developed countries, the corresponding prevalence has increased in economically developing countries.6 China is currently undergoing rapid demographic, social, and economic changes that may further increase the burden of CVD. Cardiovascular disease is increasing worldwide. People in low- and middle-income countries are more exposed to risk factors such as less awareness about food and exercise. Prevention effort in low-income countries is very few compared to people in high-income countries. People in low- and middle-income countries who suffer from CVDs have less access to effective and equitable health care services. As a result, many people in these countries die from CVDs and other non-communicable diseases, often in their most productive years. At macro-economic level, CVDs place a heavy burden on the economies of low- and middle-income countries. In 2010, the global direct and indirect cost of CVD was approximately US$ 863 billion and is estimated to rise 22% to

US$ 1,044 billion by 2030. Overall, the cost for CVD alone could be as high as US$ 20 trillion over the next 20-year period. [56] In recent years, several studies in Bangladesh have shown high prevalence of cardiovascular disease and its negative impact on survival but few studies have focused on slum populations. Bangladesh is one of the densely populated countries in the world and Dhaka city's population is about 17.6 million, of which an estimated 3.4 million people live in some 5000 slums.7 Cardiovascular diseases are one of the major health problems throughout the world. It is emerging as a serious health problem in Bangladesh and other developing countries. Amongst the heart diseases hypertension, rheumatic fever, rheumatic heart diseases, ischemic heart diseases and congenital heart diseases are common. There is a common belief that heart disease is a disease of rich people, which is not correct. Rheumatic fever and rheumatic heart diseases commonly affects poor people living in overcrowding and poverty. Congenital heart diseases and hypertension can affect both rich and poor people. Poor people are not immune from ischemic heart disease. Latest survey on cardiovascular diseases carried out in Bangladesh showed prevalence of Hypertension in adult population about 20-25%, ischemic heart disease in adult population about 10%.8 Proximal risks for CVD include those associated with consumption patterns (mainly linked to diets, tobacco and alcohol use), activity patterns, and health service use as well as biological risk factors such as increased cholesterol, blood pressure, blood glucose, and clinical disease. The Framingham Study first centered attention on the concept of "risk factors" associated with CVD, and most recently reported substantial 30-year risk data showing the accumulation of risk over time.9 Importantly, risk factors for the incidence of CVD and those associated with CVD severity or mortality are not synonymous. Risk factors for incidence become important starting very early in life and accumulate with behavioral, social, and economic factors over the life course to culminate in biological risks for CVD such as increased cholesterol, blood pressure, blood glucose, and clinical disease. Over the past few decades, the effectiveness of early screening and long-term treatment for biological risks or early disease has contributed to the sharp declines in CVD mortality seen in many countries.10 Relatively few major behavioral and biological risk factors account for CVD incidence around the world. Tobacco use, diet (including alcohol, total calorie intake, and specific nutrients) and physical inactivity serve as the three major behavioral risks. Between them, they account for a significant proportion of cancer, diabetes, and chronic respiratory disease incidence in addition to CVD.11 Concerted action focused on these behavioral risks, along with biological risks such as high blood pressure, high blood lipids, and high blood glucose, would have a wide impact on the global incidence and burden of disease. High blood pressure, tobacco use, elevated blood glucose, physical inactivity, and overweight and obesity are the five leading factors globally. In middle income countries, alcohol replaces high blood glucose in the top five; in low-income countries, a lack of safe water, unsafe sex, and undernutrition are important. These latter points are discussed further in this report in relation to both the role of early childhood nutrition in the later onset of CVD as well as the need to integrate the management of HIV/AIDS more closely with CVD in low-income countries.12

Conclusion

Hypertension, tobacco and alcohol consumption are predominant driver of CVD. Hypertensive heart disease and stroke, rather than ischemic heart disease, account for the majority of the CVD burden in the region. The study concluded that these risk factors were highly associated with diabetes.

References

1. Gaziano TA, Bitton A, Anand S, Abrahams-Gessel S, Murphy A. (2010). Growing epidemic of coronary heart disease in low- and middle-income countries. *Curr Probl Cardiol*;35(2):72-115.
2. Sania N. (2002). Prevention of coronary heart disease in south Asia. *The Lancet*;360(9338):1015-1018.
3. Bangladesh NCD Risk Factor Survey 2010
4. Saquib et al. (2012). cardiovascular diseases and Type 2 Diabetes in Bangladesh: A systematic review and meta-analysis of studies between 1995 and 2010. *BMC Public Health*, 12:434.
5. Muhit MA, Rahman MO, Raihan SZ. (2012). Cardiovascular disease prevalence and prescription patterns at a tertiary level hospital in Bangladesh. *Journal of Applied Pharmaceutical Science*; 02 (03); 80-84.
6. (1996). World Health Organization. World Health Statistics Annual. Geneva, Switzerland: *World Health Organization.*
7. Manoshi Community Health Solutions in Bangladesh (Impact Evaluation Surveys in Dhaka Urban Slums 2007, 2009 and 2011) [SR118, 2011]
8. National Heart Foundation Hospital & Research Institute. www.nhf.org.bd. Accessed on 15.03.2024
9. Pencina MJ, D'Agostino RB, Larson MG, Massaro JM, Vasan RS. (2009). Predicting the 30-year risk of cardiovascular disease: The Framingham Heart Study. *Circulation*.;119(24):3078–3084.
10. Hunink MG, Goldman L, Tosteson AN, Mittleman MA, Goldman PA, et al. (1997). The recent decline in mortality from coronary heart disease, 1980–1990. The effect of secular trends in risk factors and treatment. *Journal of the American Medical Association*.;277(7):535–542.
11. Yach D, Leeder SR, Bell J, Kistnasamy B. (2005). Global chronic diseases. *Science*.;307(5708):317.
12. (2009). WHO. Global health risks: Mortality and burden of disease attributable to selected major risks. Geneva: World *Health Organization*; b

DOI:10.31579/2768-0487/151