Original Article

A study of prevalence and risk factors associated with ischemic heart disease in diabetic patients

Pankaj Bohra[1*], Eshan Sharma[2], Kamal Kumar Jain[3]

{[1]Assistant Professor, Department of Cardiology} {[2,3]Assistant Professor, Department of Medicine}
NIMS Medical College an Hospital, Jaipur, Rajasthan, INDIA.
Email: jaindrkamalkumar@gmail.com

Abstract

Introduction: Cardiovascular diseases (CVD), comprising coronary heart (CHD) and cerebro-vascular diseases, are currently the leading cause of death globally, accounting for 21.9 per cent of total deaths, and are projected to increase to 26.3 per cent by 2030. **Aims and Objectives:** To Study Prevalence and Risk factors associated with ischemic heart disease in Diabetic Patients **Methodology:** This was a hospital based cross-sectional study of the Patients who were admitted to tertiary health care Centre with diagnosis of Diabetes with Myocardial Ischemia diagnosed by ST-Elevation Myocardial Infarction during the Period of One year from June 2014 to June 2015 at tertiary health care Centre. Total 127 patients were enrolled into the study. **Result:** The majority of the Patients were from >60- 33.86% followed by 50-60- 29.92%, 40-50- 20.47%30-40- 9.44% and 20-30- 6.29%.It can be seen that as age increases the prevalence of IHD is increases in diabetic patients. Majority of the Patients were Male i.e. 55.11% and 39.37% were Female .Most common risk factor associated was Male sex -55.11% followed by Age >60 - 33.86% And H/o Hypertension - 25.19%, Presence of CAN - 19.69%, Hypercholestromia - 18.11%Smoking - 14.96%, Tobacco Chewing - 13.38%, Uncontrolled Diabetes - 11.81%. **Conclusion:** The incidence of Ischaemic heart disease is increased as age of the diabetic patients increases and also associated with the risk factors like Male sex, Age >60, H/o Hypertens, Presence of CAN, Hypercholestromia, Smoking, Tobacco Chewing, Uncontrolled Diabetes.

Key Words: Cardiovascular diseases (CVD), Ischaemic Heart Disease(IHD), CAN (Cardiac Autonomic Neuropathy), Uncontrolled Diabetes.

[*]**Address for Correspondence:**
Dr. Pankaj Bohra, Assistant Professor, Department of Cardiology, NIMS Medical College an Hospital, Jaipur, Rajasthan, INDIA.
Email: jaindrkamalkumar@gmail.com
Received Date: 16/02/2015 Revised Date: 24/03/2015 Accepted Date: 26/04/2015

Access this article online	
Quick Response Code:	Website: www.statperson.com
	DOI: 29 April 2015

INTRODUCTION

Cardiovascular diseases (CVD), comprising coronary heart (CHD) and cerebro-vascular diseases, are currently the leading cause of death globally, accounting for 21.9 per cent of total deaths, and are projected to increase to 26.3 per cent by 2030.[1] The factors that coalesce to increase the risk of developing atherosclerotic CHD were demonstrated in Framingham in the mid-20th century[2] and have subsequently been shown to be pervasive across ethnicities and regions of the world[3] . These are not new risks, but the ubiquity of smoking, dyslipidaemia, obesity, diabetes, and hypertension has been gradually escalating[4], and is thought to be the driving influence behind the epidemic of heart disease faced today. Of the risk factors, diabetes, and its predominant form, type 2 diabetes mellitus (T2DM), has a distinctive association with CHD. Those with diabetes have two to four-fold higher risk of developing coronary disease than people without diabetes[5], and CVD accounts for an overwhelming 65-75 per cent of deaths in people with diabetes[6,7]. More significantly however, the age and sex-adjusted mortality risk in diabetic patients without pre-existing coronary artery disease was found to be equal to that of non-diabetic individuals with prior myocardial infarction

How to site this article: Pankaj Bohra, Eshan Sharma, Kamal Kumar Jain. A study of prevalence and risk factors associated with ischemic heart disease in diabetic patients. *International Journal of Recent Trends in Science and Technology* April 2015; 14(3): 752-754 http://www.statperson.com (accessed 30 April 2015).

(MI).[8] These remarkable findings regarding higher risk of mortality[9-11] have led to suspicion that common precursors predispose to diabetes and CHD[12,13]

METHODOLOGY

This was a hospital based cross-sectional study of the Patients who were admitted to tertiary health care Centre with diagnosis of Diabetes with Myocardial Ischemia diagnosed by ST-Elevation Myocardial Infarction during the Period of One year from June 2014 to June 2015 at tertiary health care Centre. Total 127 patients were enrolled into the study. The Cardiac Autonomic Neuropathy was diagnosed by Prolonged QT –interval on ECG and no rise in Heart Rate in response to Handgrip Exercises. All the patients Of Ischemic heart disease were included but those with other system affected like Renal system and Central Nervous system were excluded from the study. All detailed clinical history including the risk factors were recorded

RESULT

Table 1: Age wise Distribution of the Diabetic patients with MI

Age	No.	Percentage (%)
20-30	8	6.29%
30-40	12	9.44%
40-50	26	20.47%
50-60	38	29.92%
>60	43	33.86%
Total	**127**	**100.00%**

The majority of the Patients were from >60- 33.86% followed by 50-60- 29.92%, 40-50- 20.47% 30-40- 9.44% and 20-30- 6.29%.It can be seen that as age increases the prevalence of IHD is increases in diabetic patients.

Table 2: Gender wise Distribution of the MI Patients

Sex	No.	Percentage (%)
Male	70	55.11%
Female	50	39.37%
Total	**127**	**100%**

Majority of the Patients were Male i.e. 55.11% and 39.37% were Female .

Table 3: Distribution of the Diabetic patients with MI as per the Associated risk factors

Risk Factors	No.	Percentage (%)
Age >60	43	33.86%
Male	70	55.11%
Hypercholestromia	23	18.11%
H/o Hypertension	32	25.19%
Smoking	19	14.96%
Tobacco Chewing	17	13.38%
Presence of CAN	25	19.69%
Uncontrolled Diabetes	15	11.81%

Most common risk factor associated was Male sex - 55.11% followed by Age >60 - 33.86% And H/o Hypertension - 25.19%, Presence of CAN - 19.69%, Hypercholestromia- 18.11% Smoking - 14.96%, Tobacco Chewing - 13.38%, Uncontrolled Diabetes - 11.81%.

DISCUSSION

Diabetic patients have twice the risk of myocardial infarction (MI) and stroke of that of the general population.[14] In their cross-sectional study, Haffner *et al*. identified individuals between age 45 and 64 from the Finnish Social Institution's register and compared the outcomes of type 2 diabetic patients with those of non-diabetic control subjects. During a seven-year followup and after adjustment for other cardiovascular risk factors, the risk of myocardial infarction and the mortality from coronary heart disease were similar in diabetics without prior myocardial infarction and non-diabetics with prior myocardial infarction.[15] This observation, derived from a group of middle-aged and older individuals, has been integrated into clinical practice and served as a premise to consider diabetes a CVD equivalent. Nonetheless, age remains an important factor to take into account when assessing the risk of diabetic patients. In a large population-based retrospective cohort study, Booth *et al*. reported that diabetes seems to account for a risk equivalent to ageing 15 years. However, younger diabetics (age 40 or younger) do not appear to be at high risk of CVD.[16] A number of comprehensive risk assessment tools taking into account patients' age and risk factors profile are recognized by major scientific societies and have been validated in numerous clinical trials. Such tools are available online and include the Framingham risk calculator[17], the UK Prospective Diabetes Study risk engine[18] and the ADA's Diabetes Personal Health Decisions.[19] In our study we have observed thatThe majority of the Patients were from >60- 33.86% followed by 50-60- 29.92%, 40-50- 20.47%30-40- 9.44% and 20-30- 6.29%.It can be seen that as age increases the prevalence of IHD is increases in diabetic patients. Majority of the Patients were Male i.e. 55.11% and 39.37% were Female Most common risk factor associated was Male sex -55.11% followed by Age >60 - 33.86% And H/o Hypertension - 25.19%, Presence of CAN - 19.69%, Hypercholestromia - 18.11%Smoking - 14.96%, Tobacco Chewing - 13.38%, Uncontrolled Diabetes - 11.81%.

CONCLUSION

The incidence of Ischaemic heart disease is increased as age of the diabetic patients increases and also associated with the risk factors like Male sex , Age >60 , H/o Hypertens, Presence of CAN, Hypercholestromia, Smoking , Tobacco Chewing , Uncontrolled Diabetes

REFERENCES

1. World Health Organization. World Health Statistics.Department of Measurement and Health Information Systems of the Information, Evidence and Research Cluster. Geneva: WHO Press; 2008. p. 29-31.
2. Kannel WB. Some lessons in cardiovascular epidemiology from Framingham. Am J Cardiol 1976; 37 : 269-82.
3. Yusuf S, Hawken S, Ounpuu S, Dans T, Avezum A, Lanas F, *et al*. Effect of potentially modifiable risk factors associated with myocardial infarction in 52 countries (the INTERHEART study): case-control study. Lancet 2004; 364 : 937-52.
4. Gupta R, Joshi P, Mohan V, Reddy KS, Yusuf S. Epidemiology and causation of coronary heart disease and stroke in India. Heart 2008; 94 : 16-26.
5. Kannel WB, McGee DL. Diabetes and cardiovascular disease.The Framingham study. JAMA 1979; 241 : 2035-8.
6. Moss SE, Klein R, Klein BE. Cause-specific mortality in a population-based study of diabetes. Am J Public Health 1991; 81 : 1158-62.
7. Geiss LS, Herman WM, Smith PJ. Mortality in non-insulindependent diabetes. In: National Diabetes Data Group, editor. Diabetes in America, 2nd ed. Bethesda, MD: NIH and NIDDK: National Diabetes Information Clearing house; 1995. p. 233- 55.
8. Haffner SM, Lehto S, Ronnemaa T, Pyorala K, Laakso M. Mortality from coronary heart disease in subjects with type 2 diabetes and in nondiabetic subjects with and without prior myocardial infarction. N Engl J Med 1998; 339 : 229-34.
9. Donahoe SM, Stewart GC, McCabe CH, Mohanavelu S, Murphy SA, Cannon CP, *et al*. Diabetes and mortality following acute coronary syndromes. JAMA 2007; 298 : 765- 75.
10. Stamler J, Vaccaro O, Neaton JD, Wentworth D. Diabetes, other risk factors, and 12-yr cardiovascular mortality for men screened in the Multiple Risk Factor Intervention Trial. Diabetes Care 1993; 16 : 434-44.
11. Franco OH, Steyerberg EW, Hu FB, Mackenbach J, Nusselder W. Associations of diabetes mellitus wth total life expectancy and life expectancy with and without cardiovascular disease. Arch Intern Med 2007; 167 : 1145-51.
12. Laakso M, Kuusisto J. Epidemiological evidence for the association of hyperglycaemia and atherosclerotic vascular disease in non-insulin-dependent diabetes mellitus. Ann Med 1996; 28 : 415-8.
13. Haffner SM. Epidemiology of insulin resistance and its relation to coronary artery disease. Am J Cardiol 1999; 84 : 11J-14J
14. T. A. Pearson, S. N. Blair, S. R. Daniels *et al*., "AHA guidelines for primary prevention of cardiovascular disease and stroke: 2002 update: consensus panel guide to comprehensive risk reduction for adult patients without coronary or other atherosclerotic vascular diseases," Circulation, vol. 106, no. 3, pp. 388–391, 2002.
15. S. M. Haffner, S. Lehto, T. Ronnemaa, K. Py ¨ or¨ al¨ a, and M. ¨ Laakso, "Mortality from coronary heart disease in subjects with type 2 diabetes and in nondiabetic subjects with and without prior myocardial infarction," The New England Journal of Medicine, vol. 339, no. 4, pp. 229–234, 1998.
16. G. L. Booth, M. K. Kapral, K. Fung, and J. V. Tu, "Relation between age and cardiovascular disease in men andwomen with diabetes compared with non-diabetic people: a population-based retrospective cohort study," The Lancet, vol. 368, no. 9529, pp. 29–36, 2006.
17. P. W. F. Wilson, R. B. D'Agostino, D. Levy, A. M. Belanger, H. Silbershatz, and W. B. Kannel, "Prediction of coronary heart disease using risk factor categories," Circulation, vol. 97, no. 18, pp. 1837–1847, 1998.
18. R. J. Stevens, V. Kothari, A. I. Adler, I. M. Stratton, and R. R. Holman, "The UKPDS risk engine: a model for the risk of coronary heart disease in type II diabetes (UKPDS 56)," Clinical Science, vol. 101, no. 6, pp. 671–679, 2001.
19. D. M. Eddy and L. Schlessinger, "Archimedes: a trial-validated model of diabetes," Diabetes Care, vol. 26, no. 11, pp. 3093– 3101, 2003.

Source of Support: None Declared
Conflict of Interest: None Declared