International Journal of Pharmacy and Pharmaceutical Science

ISSN Print: 2664-7222
ISSN Online: 2664-7230
IJPPS 2025; 7(2): 773-776
www.pharmacyjournal.org
Received: 20-10-2024
Accepted: 23-11-2024

Eswar Ganesh Babu T
Department of Biotechnology, SIMS College of Life Sciences, Guntur, Andhra Pradesh, India

Srinivas Nammi
Campbell Provost Campus, Discipline of Medical sciences School of Science Western Sydney University, NSW, Australia

SA Mastan,
Oswal Udhyog, Andheri (W), Mumbai, Maharastra, India

Uday Shankar S
Department of Cardiovascular Disease Ahalya Hospitals Guntur, Andhra Pradesh, India

Sandhya B
Department of Biotechnology, SIMS College of Life Sciences, Guntur, Andhra Pradesh, India

Madhavi Latha J
Department of Pharmacy, St.Xavier Institute of Pharmacy, Guntur, Andhra Pradesh, India

Himahasanthi A
Department of Biotechnology, SIMS College of Life Sciences, Guntur, Andhra Pradesh, India

Harshitha T
Department of Biotechnology, SIMS College of Life Sciences, Guntur, Andhra Pradesh, India

Krishna Tulasi P
Department of Biotechnology, SIMS College of Life Sciences, Guntur, Andhra Pradesh, India

Gnana Sri A
Department of Biotechnology, SIMS College of Life Sciences, Guntur, Andhra Pradesh, India

Corresponding Author:
Eswar Ganesh Babu T
Department of Biotechnology, SIMS College of Life Sciences, Guntur, Andhra Pradesh, India

A Study on Assesment of risk factors of Coranary artery disease in hypertensive & diabetic patients

Eswar Ganesh Babu T, Srinivas Nammi, SA Mastan, Uday Shankar S, Sandhya B, Madhavi Latha J, Himahasanthi A, Harshitha T, Krishna Tulasi P and Gnana Sri A

DOI: https://www.doi.org/10.33545/26647222.2025.v7.i2i.275

Abstract
A disease in which there is a narrowing or blockage of the coronary arteries (blood vessels that carry blood and oxygen to the heart). Coronary artery disease is usually caused by atherosclerosis (a buildup of fatty material and plaque inside the coronary arteries). The disease may cause chest pain, shortness of breath during exercise, and heart attacks [1].
Hypertension, also known as high or raised blood pressure, is a condition in which the blood vessels have persistently raised pressure.
Diabetes is a group of metabolic diseases characterized by hyperglycemia resulting from defects in insulin secretion (autoimmune destruction of the β-cells of the pancreas) insulin action, or both [2].
From an epidemiological prospective, a risk factor is a characteristic or feature of an individual or population that is present early in life and is associated with an increased risk of developing future disease [4].

Keywords: Coronary artery disease, hypertension, diabetes mellitus, cardiovascular risk factors, atherosclerosis, epidemiology

Introduction
Cardiovascular disease (CVD) is the leading cause of death and disability worldwide. It is expected that by 2020, CVD would prevail as the leading cause of death and disability over infectious diseases globally [5]. Cardiovascular disease encompass atherosclerotic vascular diseases like coronary heart disease (CHD), cerebrovascular disease (CBVD), and peripheral arterial diseases. In recent years, demographics and health surveys have reported increasing malaise of CVD among individuals of all socioeconomic strata. According to recent statistics, incidences of CVD-related death and disability in low-income countries have grown at an alarming pace. In 2017, Gupta *et al*. reported that India alone is burdened with approximately 25% of cardiovascular-related deaths and would serve as a home to more than 50% of the patients with heart ailments worldwide within next 15 years [6]. The seriousness of current scenario could be gauged by the fact that most CVD sufferers in India happens to be in their productive age which may potentially impose huge socioeconomic burden and devastating consequences over the coming years. In 2005, Reddy *et al*. reported that India has incurred the highest loss in productive years of life worldwide [7]. Presently, the greatest public health challenge to developing countries is to control epidemics of chronic non communicable diseases, specifically CVD, CHD, diabetes and stroke which have caused almost doubled mortality rates than other communicable diseases in India [8].
Cardiovascular diseases (CVDs) are the major causes of death in the developed world and account for almost 1 million fatalities in the United States alone every year. Of these cardiovascular deaths, nearly half result directly from CAD and another 20 percent from a stroke [1]. It is estimated that the occurrence of global cardiovascular deaths will increase from 16.77 million in 2002 to 23.3 million in 2030 [6].
In the Framingham Heart Study, participants who were initially free of CAD showed that their lifetime risk when aged 40 was 49% in men and 32% in women. Even those who were free from this disease aged 70 had a lifetime risk of 35 percent and 24 percent in men and women, respectively [7]. For people aged 18 years and over, estimates of frequency are 11.4

Percent among white or Caucasian and 9.9 percent in African Americans [9]. Many studies now have shown that the increasing trend of CAD has shifted to low and middle-income countries [9].

Materials and Method

Method: Using Framingham risk score, ASCVD risk estimator plus we calculated & estimated the risk factors of CAD in hypertensive & diabetic patients in tertiary care hospitals by randomly collecting patient information regarding socio-demographic details, laboratory parameters, social history, family history, life style & dietary habits, past medical & medication history, which are then correlated with modifiable & non modifiable risk factors of CAD to brought out the risk % in patients.

Results and Discussion

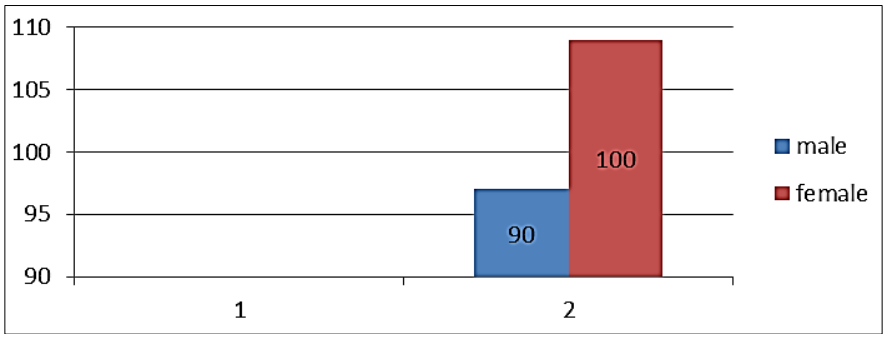
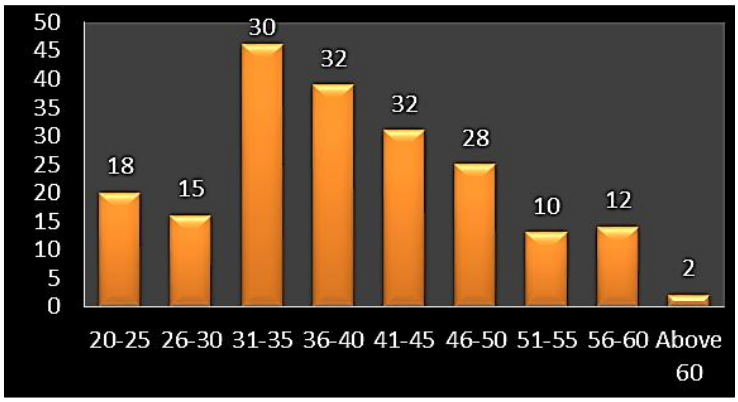
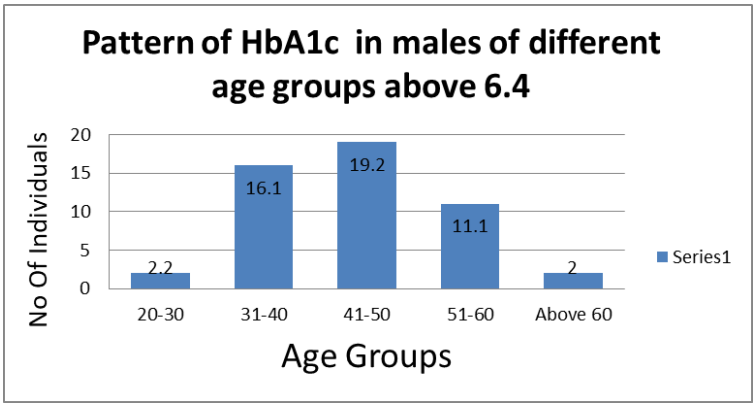


Table 1: Age Wise Distribution of Population

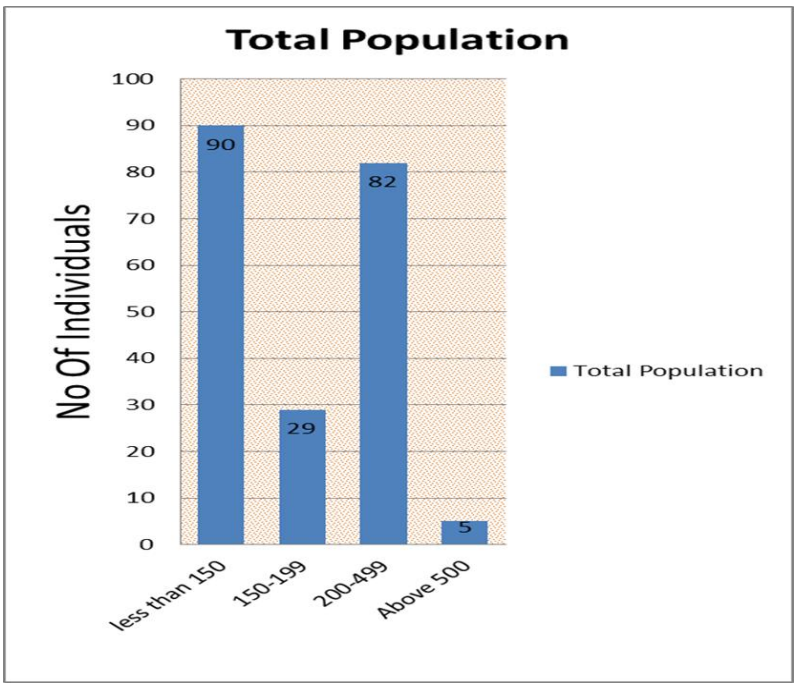
Age Group	No of Patients
20-25	18
26-30	15
31-35	30
36-40	32
41-45	32
46-50	28
51-55	10
56-60	12
Above 60	2



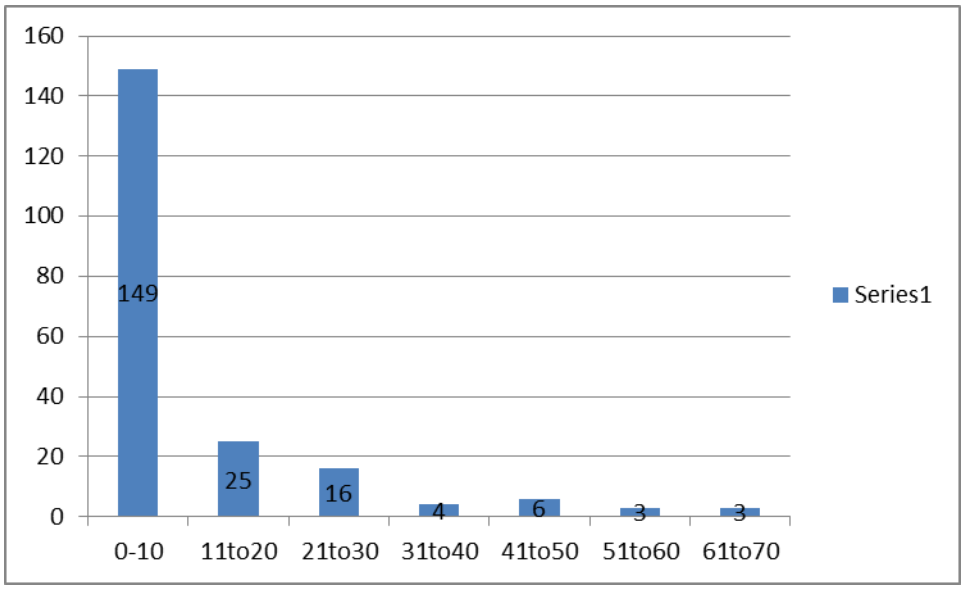
- Out of a total 206 patients who are involved in this study &who underwent the risk factors evaluation, the youngest was 20 years old, whereas the oldest was 65 years old



Triglycerides Level
Total population



ASCVD Risk Calculation



Discussion

Many studies have shown that the risk factors for CAD are multi-factorial in etiology and each risk factor is attributable to CAD by accentuating the coronary vessels atherosclerosis. It is therefore important to assess the prevalence of risk factors to then reduce subsequent CVDs.

The Framingham Heart study, conducted over a period of 25 years, with male and female participants aged between 35 and 84 years, indicated that CAD was twice as high in men as women. However in an earlier study by Pandey *et al* between 1960 and1968 in Nepal, the male to female ratio was 6.5:1. The current study is consistent with several other studies conducted in Nepal (Shrestha *et al.*, [15] and Poudel *et al.*, [16]) with a gender difference of CAD risk.

Cigarette smoking was major risk factor in this study, 58% and it was higher in males (61.23%) and in the 61-80-year group, 68.10%. The prevalence was higher than other studies of Nepal, Vaidya *et al.*, [10] (33.3%), and the nationwide NCD risk factors survey, 2013 [13]. However, a recent study presented by Dhungana *et al.*, [17] revealed a lower percentage of smoking, 28.6% predominantly among females. Moreover, this study presented similar results to the Framingham study i.e. association of smoking differed with different age groups.

In this study, most patients have combined dyslipidemias than isolated. However, low HDL was seen in 67%, High LDL Cholesterol in 27%, Hypertriglyceridemia in 15% and Hypercholesterolemia in 13%. In a study by Kalra *et al.*, [18], Hypercholesterolemia was seen in 12.6% of patients. In the Greek adults study by Gikas *et al.*, [19], 12.2% of patients had Hypercholesterolemia. In the Croatian hospital base study of 1298 CAD patients studied by Vrazic *et al.*,[20],

72% had hypercholesterolemia, 51.5% had hypertriglyceridemia, 42.6% had lower rates of HDL cholesterol and 72.3 % had increased LDL cholesterol.

Conclusion

This study aims to assess the risk factors associated with coronary artery disease in hospital admitted patients at AHALYA Hospital, Guntur. We believe that the findings would address the extent of CVDs in the population around Guntur and would be useful to implementing CVD prevention programs.

This cohort study identified multiple risk factors, most of which can be addressed, associated with CAD. Modification of these factors by pharmacotherapy, diet and exercise, and behavior therapy can both improve the prognosis of these patients and reduce the burden of CAD in this population group.

References

1. Ridker PM, Libby P. Risk markers for atherothrombotic disease. In: Braunwald E, Bonow RO, Mann DL, Zipes DP, Libby P, editors. Braunwald's heart disease: a textbook of cardiovascular medicine. 9th ed. Philadelphia: W.B. Saunders Company; 2012. p. 914-934.
2. Mathers CD, Loncar D. Projections of global mortality and burden of disease from 2002 to 2030. PLoS Med. 2006;3:e442.
3. Lloyd-Jones DM, Larson MG, Beiser A, Levy D. Lifetime risk of developing coronary heart disease. Lancet. 1999;353:89- 92.
4. Vital and Health Statistics Series. Hyattsville (MD): National Center for Health Statistics; 2011.
5. Abegunde DO, Mathers CD, Adam T, Ortegon M, Strong K. The burden and costs of chronic diseases in low-income and middle-income countries. Lancet. 2007;370:1929- 1938.
6. Bhardwaj SD, Shewte MK, Bhatkule PR, Khadse JR. Prevalence of risk factors for non-communicable disease in a rural area of Nagpur district, Maharashtra A WHO STEPwise approach. Int J Biol Med Res. 2012;3:1413- 1418.
7. Zaman MJ, Patel A, Jan S, Hillis GS, Raju PK, Neal B, *et al*. Socioeconomic distribution of cardiovascular risk factors and knowledge in rural India. Int J Epidemiol. 2012;41:1302- 1314.
8. Rasiah R, Yusoff K, Mohammadreza A, Manikam R, Tumin M, Chandrasekaran SK, *et al*. Cardiovascular disease risk factors and socioeconomic variables in a nation undergoing epidemiologic transition. BMC Public Health. 2013;13:886.
9. Joshi R, Taksande B, Kalantri SP, Jajoo UN, Gupta R. Prevalence of cardiovascular risk factors among rural population of elderly in Wardha district. J Cardiovasc Dis Res. 2013;4:140- 146.
10. Vaidya A. Tackling cardiovascular health and disease in Nepal: epidemiology, strategies and implementation. Heart Asia. 2011;3:87- 91.
11. National Cholesterol Education Program (NCEP). Third report of the expert panel on detection, evaluation, and treatment of high blood cholesterol in adults (Adult Treatment Panel III). Circulation. 2002;106:3143-3421.
12. Cardiovascular disease risk factors.
13. World Health Organization, Nepal Health Research Council. Non-communicable diseases risk factor STEPS survey Nepal. Kathmandu: WHO; 2013.
14. Ministry of Health and Population, Government of Nepal; Society for Local Integrated Development Nepal (SOLID Nepal); World Health Organization. WHO STEPS surveillance: non-communicable diseases risk factors survey. Kathmandu; 2008.
15. Shrestha NR, Basnet S, Bhandari R, Acharya P, Karki P, Pilgrim T, Meier B. Presentation and outcome of patients with acute coronary syndromes in eastern Nepal. Swiss Med Wkly. 2011;141:w13174.
16. Paudel B, Paudel K, Paudel R, Shrestha G, Maskey A, Panta OB. A study of acute coronary syndrome in Western Region of Nepal. J Gandaki Med Coll. 2008;11:33- 37.
17. Dhungana RR, Devkota S, Khanal MK, Gurung Y, Giri RK, Parajuli RK, *et al*. Prevalence of cardiovascular health risk behaviors in a remote rural community of Sindhuli district, Nepal. BMC Cardiovasc Disord. 2014;14:92.
18. Kalra S, Narain S, Karki P, Ansari JA, Ranabhat K, Basnet N. Prevalence of risk factors for coronary artery disease in the community in eastern Nepal a pilot study. J Assoc Physicians India. 2011;59:300- 301.
19. Gikas A, Sotiropoulos A, Panagiotakos D, Pastromas V, Papazafiropoulou A, Pappas S. Prevalence trends for myocardial infarction and conventional risk factors among Greek adults (2002- 2006). QJM. 2008;101:705-712.
20. Vrazić H, Lucijanić T, Sikić J, Spoljarić IR, Polić S, Ljubičić D, *et al*. The prevalence of diabetes mellitus and abnormal lipid status among Croatian hospitalized coronary heart disease patients. Coll Antropol. 2012;36:223- 228.