

A STUDY ON PROFILE OF CORONARY ARTERY DISEASE IN A TERTIARY CARE HOSPITAL

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Abstract

Background : Cardiovascular diseases (CVD) are one of the leading cause of death and disabilities in the world. The global burden of deaths due to CAD has been estimated as 7.4 million. Indian subcontinent has the highest burden of CAD in the world accounting for the maximum morbidity from CAD. It has been noted that Indian population are at a higher risk of developing CAD at an earlier age and hence it is of paramount importance to gather data on CAD profile of the Indian population.

Objective : To study the clinical profile of Coronary Artery Disease (CAD) cases in the Indian population and compare trends with respect to risk factors and outcome.

Methodology : Case based retrospective cross sectional study was done. Study population included all complete case sheets with the diagnosis of CAD over the years 2010-11 and 2015-16. Information from prerecorded case sheets were entered into a structured data collection sheet which was further analyzed using SPSS version 20. Results were expressed in percentages, means and graphs.

Results: The study included 373 CAD patients. Majority of patients fell within the age bracket of 55-65yrs with a means age of 58.74±12.84yrs. Amongst the study population 28.68% patients were females and 71.31% were males. A decreasing mean age was observed from the years 2010-11 and 2015-16. Similarly trend was noted with respect to sex based incidence of CAD over the years where the percentage of female population affected rose from 25.8% to 32%. 24.3% of patients were found to be diabetic and 38.2% were found to be hypertensive. About 40.2% were smokers and 34.4% were alcoholics.

Conclusion : Our study population showed congruence with the established trends of conventional risk factors but Diabetes mellitus tends to be of more importance as a modifiable risk factor. This warrants more robust public health intervention to raise awareness and implement practices that could potentially reduce the risk of CAD burden

Keywords : Coronary Artery Disease, Record based study, Tertiary care hospital, South India

INTRODUCTION

Cardiovascular disease (CVD) is one among the leading cause of death and disabilities globally. In the year 2015, approximately 17.7 million people died from CVD representing almost one third of all deaths. CVD includes diseases like coronary artery disease (CAD), Hypertension, Cardiac arrest, etc. CVD is leading cause of fatality in our country, out of which CAD has a major contribution which includes stable angina, unstable angina, myocardial infarction (MI) and sudden cardiac deaths.^[1]

The global burden of deaths due to CAD has been estimated as 7.4 million. Indian subcontinent which includes India, Pakistan, Bangladesh, Nepal, etchas the highest burden of CAD in the world and deaths related to CAD might occur a decade earlier than western countries. India has approximately 3 crore symptomatic patients of CAD which shows its severity.^[1]

Age, gender, smoking, hypertension, dyslipidemia, diabetes, central obesity and positive family history with CAD are major risk factors for CAD.^[2] The Framingham study reports an increased incidence of MI in men as compared to women in the age group of 30-50. India has 19.3 million diabetic and 118 million people with hypertension at risk of having CAD.^[3]

Hence we planned to study the clinical profile of CAD cases at a hospital in coastal Karnataka, compare the risk factors and assess the outcome of the treatment.

MATERIALS AND METHODS:

A Singlecentric retrospective cross sectional study was conducted at Government Wenlock hospital, Mangaluru. Medical records of patients admitted with a diagnosis of Coronary Artery Disease (involving STEMI, NSTEMI and Unstable Angina) were included in the present study. Case sheets with insufficient data were excluded. All patients diagnosed with coronary artery disease in the year 2010-11 and 2015-16 were included in the study. Semi-structure proforma was prepared after conducting an extensive literature review onto which data was recorded. Prior to commencement of the study, institutional ethical committee clearance was taken. The information collected was kept confidential. The collected data was entered and analyzed in SPSS version 16.0. Results were presented in percentages.

RESULTS

A retrospective cross sectional study was done on clinical profile of 373 CAD patients obtained from the Medical Records Department of Government Wenlock Hospital, Mangaluru. The basic demographic parameters of CAD patients are displayed in Table 1. The mean age of the patients is 58.74±12.84. The majority (n= 110, 29.5 %) of cases were from the age group 56-65. Among the 373 CAD patients, 107(28.68%) patient were females and 266(71.31%) were males indicating there was a higher preponderance for males. Maximum (n= 170, 46%) number of patients were found to be discharged within 5 days of their hospital stay.

Table 2 shows the comparison of age distribution of patients suffering from CAD during the years 2010-11 and 2015-16. The majority 32.8% (n=65) of the cases were from the age group 56-65 in 2010-11 and 26.3% (n= 46) from the age group of 46-55 in 2015-16. One of the risk factors analyzed was Gender of the CAD patients. In the year 2010-11 male patients (74.2%, n= 147) suffering from CAD were 147 (74.2%) in number as compared to female patients (25.8%, n=51) whereas in 2015-16, over 5 years, number of females increased to 32% (n=56) and males were 68 % (n=119). Risk factors like Diabetes Mellitus, Hypertension, Smoking and Alcohol intake were assessed in the study population. Out of the 325 patients for whom the data was available, 24.3% (n=79) were found to be diabetic and 38.2% (n=124) were found to be hypertensive. About 40.2% (n=105) were smokers and 34.4% (n=89) were alcoholics out of a total of 258 patients for whom this data was available.

It was observed that majority (n=255, 68.4%) of the patients presented with chest pain as one of their chief complaints followed by breathlessness (n= 151, 40.5%), vomiting (n=30, 8%) and abdominal pain (n=25, 6.7%). About 4% (n= 15) patients were found to develop Myocardial Infarction following surgery. In the past 5 years the percentage of people who died due to CAD increased from 28% (n=55) in the year 2010-11 to 33% (n=58) in the year 2015-16 as depicted in Table 3.

TABLE 1: BASELINE CHARACTERISTICS OF CAD PATIENTS

BASELINE CHARACTERISTICS	NUMBER	PERCENTAGE
AGE GROUP(YEARS) (N=373)		
≤25	002	0.50
26-35	015	04.0
36-45	047	12.6
46-55	087	23.3
56-65	110	29.5
66-75	083	22.3
>75	029	07.8
SEX (N=373)		
Male	266	71.3
Female	107	28.7
DURATION OF STAY (DAYS) (N=367)		
≤5	207	56.4
6-15	127	34.6
>15	033	009

TABLE 2: COMPARISION OF AGE DISTRIBUTION OF PATIENTS SUFFERING FROM CAD DURING THE YEAR 2010-11 (N=198) AND 2015-16 (N=175)

AGE GROUPS	2010-11(N=198)	2015-16(N=175)
<25	00(0%)	02(1.1%)
25-35	12(6.1%)	03(1.7%)
36-45	22(11.1%)	25(14.3%)
46-55	41(20.7%)	46(26.3%)
56-65	65(32.8%)	45(25.7%)
66-67	45(22.7%)	38(21.7%)

TABLE 3: OUTCOME OF TREATMENT FOR PATIENTS SUFFERED FROM CAD IN THE YEARS 2010-11(N=198) AND 2015-16 (N=175)

YEARS	NO. OF PATIENTS ALIVE (%)	NO. OF PATIENTS DEAD (%)
2010-11 (N=198)	143(72.2%)	055(27.8%)
2015-16 (N=175)	117(66.9%)	058(33.1%)

DISCUSSION

Myocardial Infarction and other Coronary Artery Diseases like angina, sudden cardiac deaths etc. still remain one of the leading causes of deaths in the world and in India too.^[1] Even though developed nations have witnessed a shift in mortality rates from infectious diseases to Non communicable diseases, a declining trend has been observed with respect to Coronary Artery Diseases. This is in stark contrast with the Indian Subcontinent where it has been confirmed that there has been a steadily increasing trend to the incidence of CADs in the past 30 years.^[4]

It is interesting to note that the study conducted by Hughes et al and Enas et al has revealed that Indians are prone to cardiac diseases at an earlier age, as much as 5-10 years earlier than the rest of the global population.^[5,6] This is further concentered by our study where we observed the overall mean age of the patients included were 58.74 ± 12.78 where as it is 63 in Western Europe, China and Hong Kong according to the INTERHEART study conducted by Yusuf et al.^[7]

It is noteworthy to keep in mind that a study conducted in India showed a declining age trend over the past decade with the mean age dropping from 36.74 ± 3.68 to 35.68 ± 4.16 .^[2] In our study we were able to demonstrate a very miniscule yet similar significant declining trend over the 5yr study period where the mean ages changed from 58.86 ± 12.78 (in 2010-11) to 58.6 ± 12.94 (2015-16). The abovementioned study also shows that there was an increase in the proportion of female patients over the decade which is congruent with our finding which also denoted a change in percentage of female patients from 25.8% to 32%.^[2] The silent increase in female patients affected with CAD over the years warrants more attention to women and cardiac disease. Although risk factors remain more or less the same among both sexes, it has been documented by Gopalan and Siva, Ramanakumar and Yusuf et al in their studies that risk reduction and exercise has a much bigger role in decreasing incidence of CADs among women than men.^[7-9] CADs have historically been called a disease of men, and rightfully so in our study we were able to witness that a staggering 71.31% of patients affected with CADs were male.

Even though studies done in South Asia population reveals that the established risk factors like DM, HTN and smoking has a population attributable risk of 90% and 94% respectively for men and women, our study was able to shed more light on further sub stratification of the risk factors.^[7] In our study 40.6% patients were smokers which is comparable to another study wherein prevalence of smoking was 44%.^[11] Upon comparing the studies done by Kamendu et al., Sharma et al. and Bhardwaj et al, the percentage of hypertensive people getting CAD is higher than our present study indicating that the risk of hypertensive people getting CAD is relatively lower in the study area.^[10,11,12] A study done in China from 2010-2014 indicated that the incidence of hypertension raised from 40.7% to 47.5%, and diabetes proportion increased from 20.3% to 26.1% whereas in our present study the changes were almost insignificant.^[13] On the contrary where other studies showed an attributable risk of 10% for Diabetes mellitus, our study revealed a risk of about 24.3%.^[10,11,12] This becomes more significant when we take into consideration that Centers for Disease Control and Prevention shows that about 92% of the people suffering from CAD presented with chest pain as their chief complaint whereas in our study but only 68.4% presented with chest pain as their chief complaint.^[14] The low rate of Chest pain as the major chief complaint is an alarming reminder that Silent MI is increasing in incidence rampantly in our population. It's estimated that one is four asymptomatic diabetic patient has had a silent MI.^[15]

CONCLUSION

In conclusion, our study population showed congruence with the established trends of conventional risk factors but Diabetes mellitus tends to be of more importance as a modifiable risk factor. Being the diabetic capital of the world, this

warrants more robust public health intervention to raise awareness and implement practices that could potentially reduce the risk of CAD burden. As our study shed light on the most important risk factor to target amongst the already established list of risk factors in the South Indian population, it also stresses upon the need to personalize community health programs based on sociodemographic regions, tailoring to the population at which it is targeted rather than relying on set international guidelines and standards. Special attention needs to be given to the pattern of screening of CAD to take into account the growing incidence of Silent MIs.

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