Risk Factors Assessment In Indian Young Women Underwent Percutenious Coronary Intervention (PCI) In A Tertiary Care Center Study

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Abstract:
Of particular concern to India is not only the high burden of cardiovascular diseases (CVDs), but also the effects of these diseases on the productive workforce aged 35–65 years. Heart diseases are rising in Asian Indians 5–10 years earlier than in other populations around the world. The mean age for first presentation of acute myocardial infarction in Indians is 53 years. Coronary artery disease (CAD) that manifests at a younger age can have devastating consequences for an individual, the family, and society. Prevention of these deaths in young people is a nation's moral responsibility. A strategy involving the prevention of CVDs long before their onset will be more cost- effective than providing interventions at a stage when the disease is well established. We studied rising trends in CAD with particular emphasis on prevalence of premature CAD and the associated risk factors in young Indian women CAD patients. Action strategies to reduce the risk are suggested in recommendations.

Keywords: Coronary Artery Disease and women, Young population, CVD Risk factors, Health awareness, Lifestyle related risks.

Introduction:
The non-communicable diseases commonly include cardiovascular disease (CVD), various cancers, chronic respiratory illnesses, diabetes, and so on which are estimated to account for around 60% of all deaths. CVDs such as ischaemic heart disease and cerebrovascular such as stroke account for 17.7 million deaths and are the leading cause.[1] In accordance with the World Health Organization, India accounts for one-fifth of these deaths worldwide especially in younger population. The results of Global Burden of Disease study state age-standardized CVD death rate of 272 per 100000 population in India which is much higher than that of global average of 235. [2]For us Indians, particular causes of concern in CVD are early age of onset, rapid progression and high mortality rate. A total of nearly 64 million cases of CVD are likely in the year 2015, of which nearly 61 million would be CHD cases (the remaining would include stroke, rheumatic heart disease and congenital heart diseases). Deaths from this group of diseases are likely to amount to be a staggering 3.4 million.

Indians today are undergoing a major socio-economic & cultural shift. The policies of economic liberalization have exposed us to a abdence of lifestyle and dietary changes in the last three decades. A greater proportion of people are now urban-dwellers, with a corresponding decrease in physical activity, more consumption of refined sugars and carbohydrates (calorie dense), high fat diet loaded with trans fats and such other atherogenic lipids, topped by psychological stress and reduced levels of physical activity. All these lead to obesity, high blood pressure, diabetes and development of bad cholesterol profile in the blood, cholesterol deposition and blood clot formation, leading to heart attacks.

The incidence of myocardial infarction (MI) and symptomatic CAD in females was very low but now situation has changed. Previously CAD was pronounced as man's disease, but now female are also affected by this diseses. Despite the importance of CAD for women, there is persistent perception that CAD is a man's disease. Contributing to this notion is the observation of differences in incidence rates according to age; the incidence of CAD in women is lower than men, but rises steadily after fifth decade. Studies show that young population with CAD are increasing day by day. Now patients of very young age >40 year are also affected with significant diseases in this age range.

The main causative factors for CAD identified as coronary risk factors are: smoking / tobacco, physical inactivity, faulty diet, hypertension, diabetes, high level of cholesterol and stress. As most of these risk factors are lifestyle related attempt to modify them by appropriate interventions form the cornerstone of prevention of CAD epidemic.

Traditionally, the enrolment of women in clinical trials has been minimal, resulting in a lack of gender – specific analysis of clinical trial data and therefore the absence of concrete risk factor assessment among women.

In 2018, heart disease killed 300,977 women in U.S. By comparison, all forms of cancer combined killed 283,721 women, with 42,455 of those caused by breast cancer. To this day, cardiovascular disease is the leading cause of death among women in the U.S.

A 2019 article indicated that age & sex difference od CAD in men and women,

- Age: CAD prevalence increases after 35 years of age in both men and women. The lifetime risk of developing CAD in men and women after 40 years of age is 49% and 32%, respectively.[13]
- Gender: Men are at increased risk compared to women

How is the cardiovascular system different in women vs. men?

Researchers have found many sex-related differences in the cardiovascular system. These complex differences, often at a microscopic level, can affect how women and men experience heart disease. A few examples include:

- **Anatomy**. Women have smaller blood vessels and heart chambers. The walls of their ventricles are also thinner.
- **Blood count**. Women have fewer RBC. As a result, women can't take in or carry as much oxygen at any given time.
- **Hormones**. Estrogen and progesterone dominate in women, while testosterone dominates in men. These hormones can impact many aspects of heart health and overall health.

Very few population-based studies have been conducted in different parts of India to assess the prevalence of CVD in Indian women. In the context of demographic and epidemiological transition as well as changing life styles of people, there is an urgent need to systematically document baseline information on the prevalence of risk factors possibly contributing to the problem of CVD in female in India. Present study was carried out To assess the risk factors associated with CAD among female population having significant CAD in selected tertiary health care facility of New Delhi.

METHODOLOGY

The research design adopted for the study was non-experimental descriptive survey approach. It was a secondary data survey focused on the prevalence of risk factors of cardiovascular disease among patients in selected tertiary health care facility of New Delhi. Study duration was 6 months. The study was conducted in CAD clinic of Dr R. M. L. hospital New Delhi. The study population for this study included men and women aged 18 years and above who underwent angioplasty ether of primary angioplasty or elective angioplasty in hospital. A sample size of 1513 was taken for the study, Patients whose angioplasty was done. Structured questionnaire- The questionnaire was developed self by investigator. Tool has two-part first part contains sociodemographic characteristics of study population. Second part to has risk factors. The data obtained was analysed by using descriptive and inferential statistics by using SPSS. The objectives were to examine the distribution of risk factor and coronary angiographic patterns of CAD in women.

Results:

Majority of the sample 1192(78.78%) were male and 321 (21.22%) were female in the study subjects.

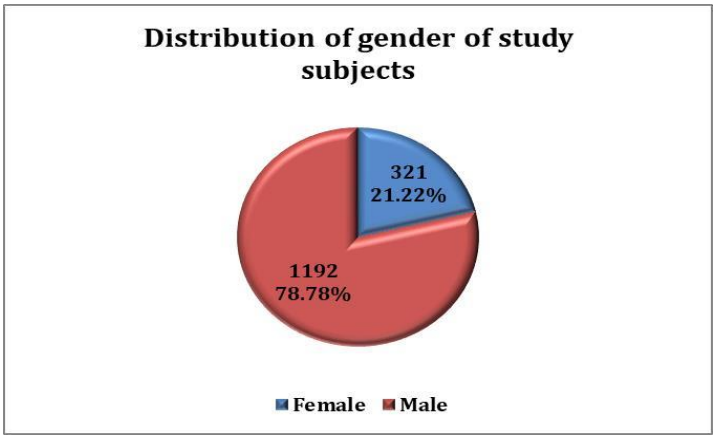

Figure 1:-Distribution of gender of study subjects

Out of 321 women. Maximum number of subjects 35.51% were in age group of 45-54 years and 8.10% were in age group of 35-44 years and 5 (1.56%)were in age group 25-34 years and 2(.62%) were of very young age group 18-24 year. Total 147(45.79%) subjects were less than 54 year of age. 90(28.04%) subjects were in the age group of 55-64

year and 85(26.17%) were found above the age of 65 years. Regarding sample of total female population 321(21.22%), 237(73.83%) were less than 65 year of age and 84(26.17%) were more than 65 year of age. Percentage of premature CAD subjects is quiet high in the study. Majority of patients from Delhi 81%, U.P 7% and other were from Haryana and Bihar.

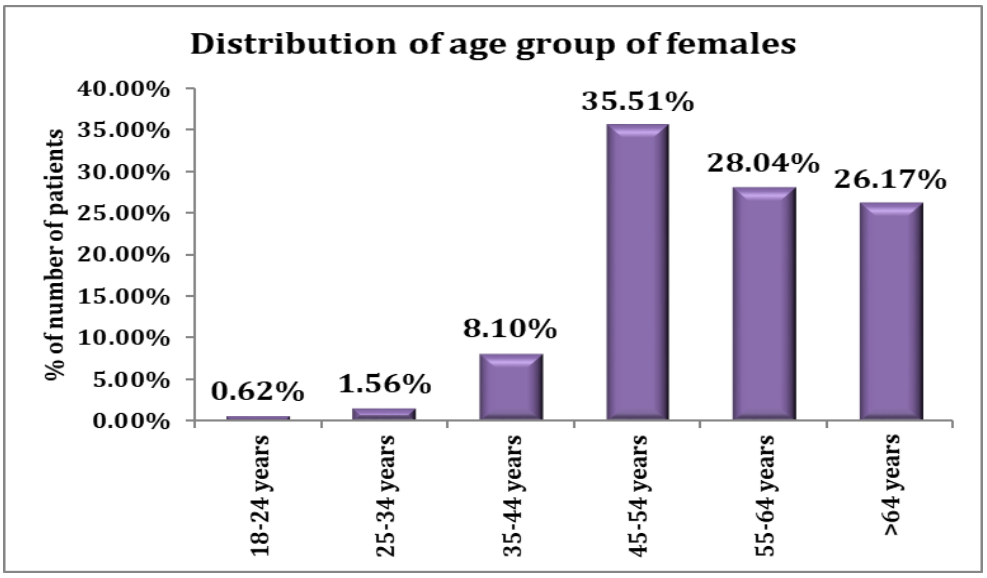

Figure 2:-Distribution of age group of females.

Out of total female subjects. Subject having diabetes were 151 (47.02%) in study population. More than one third of the study population having diabetes. 177 (55.14 %) subjects were having hypertension. More than half of the study population having hypertension. Subject having smoking habit were 59 (18.38%) in study population. More than one third of the study population having habit of smoking. Very less study population having family history of cad. Only 40 (12.46%) subjects were having dyslipidaemia. Very less study population having dyslipidaemia.

Table 1:-Distribution of risk factors in women

Risk factors	Frequency	Percentage
Diabetes	151	47.04%
Hypertension	177	55.14%
Smoking	59	18.38%
Dyslipidemia	40	12.46%

We found strong positive correlation of CAD with these modifiable risk factors like diabetes (p value = .02), hypertension (p value = .01), dyslipidaemia(p value = .01) and smoking(p value = .003).

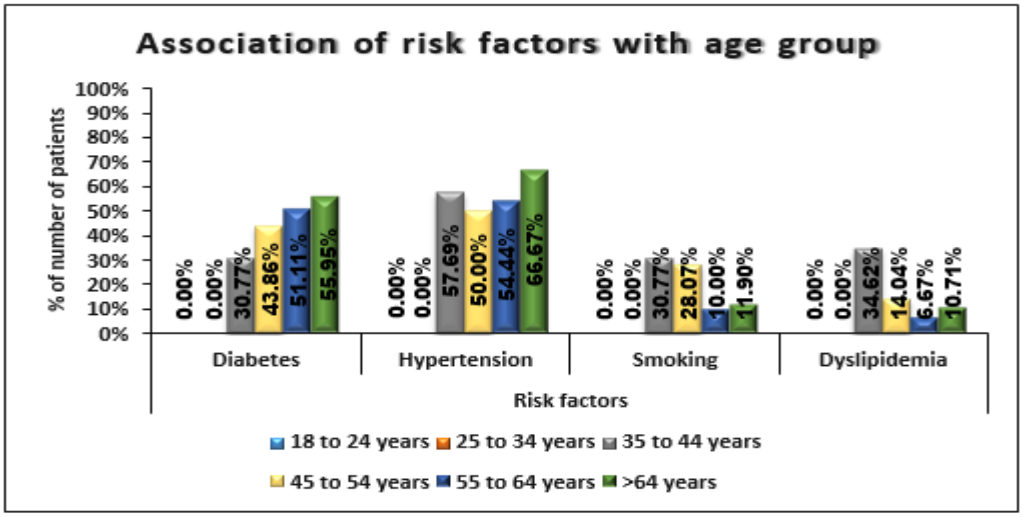

Figure 3: - Association of risk factors with age group

Risk factors	18 to 24 ears(n=2)	25 to 34 ears(n=5)	35 to 44 ears(n=26)	45 to 54 ears(n=1 14)	55 to 64 ears(n= 90)	>64 years(n 84)	Total	P value
Diabetes	0 (0%)	0 (0%)	8 (30.77%)	50 (43.86%)	46 (51.11%)	47 (55.95 %)	151 (47.04 %)	0.021*
Hypertens ion	0 (0%)	0 (0%)	15 (57.69%)	57 (50%)	49(54.44%)	56 (66.67 %)	177 (55.14 %)	0.01*
Smoking	0 (0%)	0 (0%)	8 (30.77%)	32 (28.07%)	9 (10%)	10 (11.90 %)	59 (18.38 %)	0.003*
Dyslipide mia	0 (0%)	0 (0%)	9 (34.62%)	16 (14.04%)	6 (6.67%)	9 (10.71 %)	40 (12.46%)	0.019*

Table 2:- Association of risk factors with age group with P value

we have also took history of frequency of smoking with the female patients. whether they were smoking in every 2 hours. 38.46% of population of 35 to 44 years of age were habit of smoking in every 2 hours. Correlation of frequency of smoking with patients with CAD were also have strong positive (p value = <.0001).

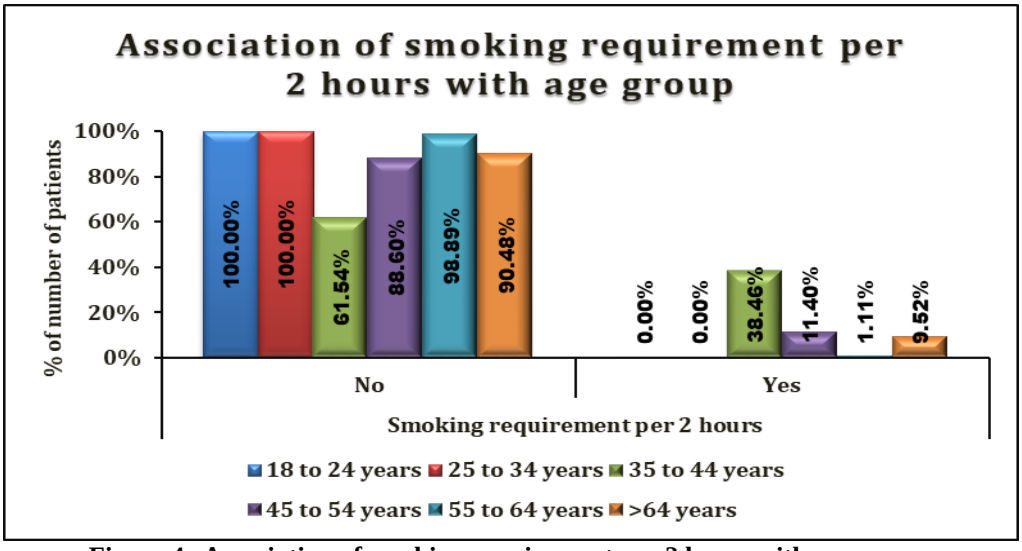

Figure 4:-Association of smoking requirement per 2 hours with age group.

DISCUSION:

This study investigated the prevalence of risk factors for CAD in females in a tertiary care hospital in central Delhi of India. Participants were of both sexes and aged 20–80 years.We assessed the CAD risk factors in female population for contributing It was found that half of the study population had hypertension (55.14%) and more than one third of the population had a diabetes (47.04%) and smoking habit (18.38%). About one fifth of the study population was dyslipidaemia (12.46%). Two or more CAD risk factors were identified in 78.6% of participants, which indicates that there is a large population who was develop CAD due to association of these factors. The present results compared with the findings in 3250 subjects over the period of 6 year in Nanavati hospital underwent angiography by lekha adik pathank.[6] The risk factor profile revealed association of raised LDL (76%) followed in turn by Hypertension (71%), Diabetes mellitus (63%), reduced HDL (55%) and obesity (54%). Active smoking was present only in 7% patients. There are very less study analysed the prevalence of risk factors in known case of CAD.

Our study has clearly shown that among the study population, there is a high prevalence of smoking, hypertension and diabetes, which are all modifiable CAD risk factors. The study has shown a direct correlation between increased smoking and dyslipidaemia, diabetes and hypertension with CAD. CAD has a multi- factorial aetiology, with many of the risk factors being influenced by lifestyle.

Conclusion: CAD in women continues to be a major public health problem that represents a leading cause of death and disability. Women have varied presentation of coronary artery disease. Age distribution of coronary artery disease amongst women showed that elderly women are more affected, but number of patients were also high in young females. Various risk factors including smoking, hypertension and diabetes of premature CAD is noted in our study. Women have varied presentation of multiple risk factor in very young age also. The percentage of smoking in female is also in increasing trend. These risk factors affect more in female due to different anatomy, hormones and psychological stress. Changes in lifestyle and increase in physical activity could help in prevention of cardiovascular disease in women.

RECOMMENDATIONS:

Recommendation for female population are that preventive strategies to be put forward should target younger female population. Many risk factors are preventable or manageable with treatment like High blood pressure, High cholesterol, High blood sugar, Lack of exercise, Unhealthy diet and Smoking.

1. Adults in their 20s and 30s can make a huge difference in their health by paying attention to their heart health and

working to reduce their risk. And it's important to remember that change doesn't happen overnight. When it comes to eating a heart-healthy diet, remember these simple steps:

- **Plan** your dietary goals. Write down all the foods you want to eat more and those you want to eat less or eliminate.
- **Pick** avoid impulse buying. make your own personal menu of healthy options and only choose those.
- **Portion** Even healthier foods can become unhealthy in large quantities. Keep an eye on your portions.
- **Enjoy** Eating a heart-healthy diet can and should be enjoyable.

2. There is also a need to increase the level of education and provide health information to increase the awareness of diseases.
3. Embarking on community-based health education programme on the risk factors for NCDs and preventive strategies.
4. Strengthening action to promote healthy diet and physical activity in schools.
5. At national level, forming appropriate policies for tobacco and alcohol control, promotion of adequate physical activity and healthy diet is required.
6. At local level, health system needs to be reoriented to address the challenge of NCDs. We have to create an environment that helps adoption of healthy lifestyle.

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