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Gender-Based Variation in Cardiovascular Disease Risk: A Rural Population Perspective

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ABSTRACT

BACKGROUND: Among gender differences, a recent study, based on data from over two million patients, suggests that women tend to have CVD after menopause and women are more likely to experience atypical symptoms such as nausea or vomiting, shortness of breath, dizziness, or no symptoms at all compared to men.

OBJECTIVE:

- High risk groups based on age and gender perspective
- Risk factors prevalence for female and male

RESULT: According to our study, women who underwent menopause were known to possess risk factors of CVD when compared to men and also possess high risk of developing CVD around the age of 61 years and above and have main risk factors such as lack of sleep, high level of stress and lack of physical activity, whereas men are known to have increased risk of developing CVD during the age of 51-60 years such as increased level of consumption of alcohol , smoking and tobacco, when compared to women.

CONCLUSION: This study aimed to determine the difference between the prevalence of risk factors of CVD among men and women and was found that women tend to have more risk of developing CVD after they underwent menopause while men tend to have risk of developing CVD

KEYWORD: Gender, age, lifestyle, rural areas, symptoms like chest pain, alcohol, tobacco, smoking, stress, sleep, physical activity

INTRODUCTION

Cardiovascular disease (CVD) refers to a group of disorders that mainly affects the heart and subsequent blood vessels. Peripheral artery disease, heart failure, stroke, and coronary artery disease are among them. Genetic, environmental, and lifestyle variables all have a role in the development of cardiovascular disease. A number of risk factors for cardiovascular disease include diabetes, high blood pressure, high cholesterol, bad diet, physical inactivity, smoking, and obesity.

Other variables that may also raise the risk of cardiovascular disease are, gender, age, socioeconomic level, and family history. Among gender differences a recent study, based on data from over two million patients, suggests that women were less likely to be prescribed aspirin, statins, and certain blood pressure medications compared to men.

A general lack of awareness of women's heart disease may lead to doctors or patients missing heart attacks in women or delaying their diagnosis. For example, while the frequency of CVD tends to be lower in women before menopause than in men, the frequency dramatically increases after menopause, when it accounts for approximately one out of every three deaths in women.

In addition, many of the "classic" signs and symptoms of CVD are based on medical research largely performed in men. For example, many think of chest pain as a typical symptom of a heart attack. But while both men and women can experience chest pain, women are more likely to experience atypical symptoms such as nausea or vomiting, shortness of breath, dizziness, or no symptoms at all. According to Harvard Health, 64% of women who die suddenly of coronary heart disease had no previous symptoms.

Underlying physiological differences in CVD in men and women may also result in less aggressive diagnosis and treatment in women. Men more commonly develop blockages of the major heart arteries, whereas women more commonly have disease of the small heart arteries (microvascular dysfunction), which can make treatment more challenging. And studies suggest that women get lifesaving procedures, such as heart catheterizations, less frequently, and later during the course of a heart attack, than men.

MATERIALS AND METHODS

A research using prospective observation was conducted, In the central-southern region of Kerala, in the Pathanamthitta district, are rural regions where the study was carried out. There was a six-month research period.

The formula used to compute the sample size was Slovin's (n=N/1+Ne2). In this case, the population size is N, and the error margin is 'e'. N=1,000,000. The rural parts of Pathanamthitta district are home to a total of 1,000,000 people. A 5% (0.05) margin of error (e) is assumed. The sample size (n), when these values are entered into the formula, is 399.84. Although 400 people can be selected in total, 500 people are chosen in order to increase accuracy and decrease error margin.

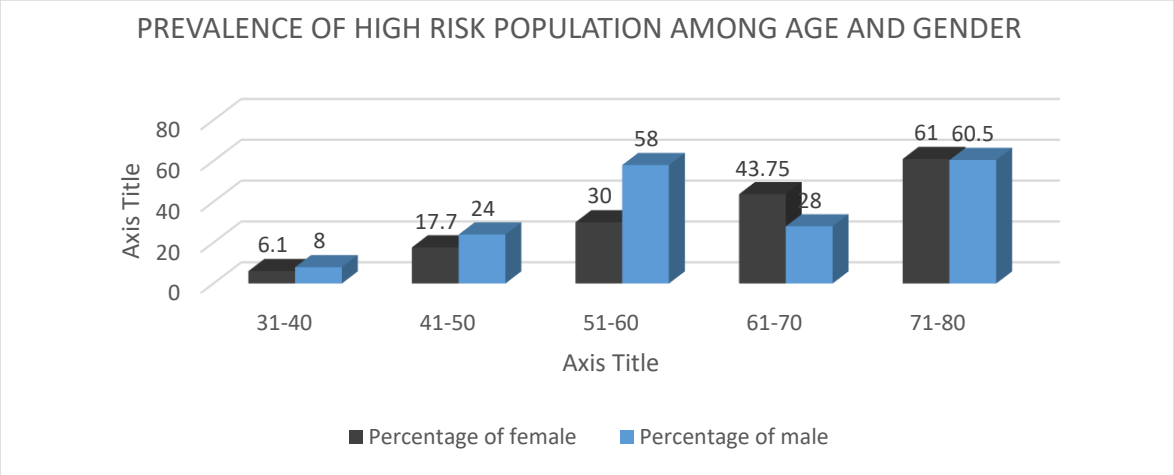
Participants in this study range in age from thirty to eighty years. Participants who agree to take part in the study and who have never received a diagnosis of a cardiovascular illness are among the inclusion criteria. Exclusion criteria include pregnant or nursing moms as well as those individuals that are reluctant to engage in the study.

Those who agreed to take part in the study were first required to fill out a permission form, and then they were asked to answer a semi-structured questionnaire that assessed their understanding of several risk factors that may influence them.

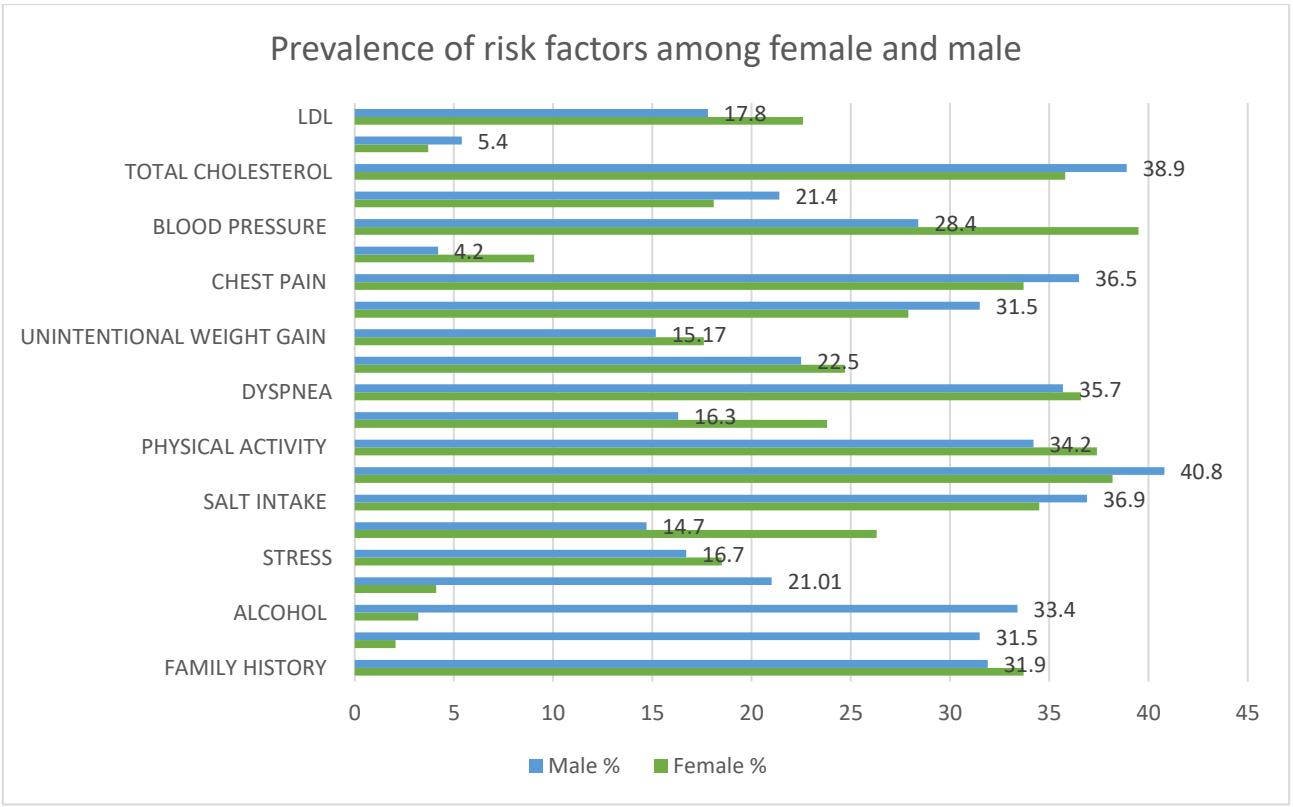
Parameters including blood pressure, cholesterol, BMI, and glucose were measured in order to analyze the different risk factors of CVD. Using a Glucometer, the random blood sugar (RBS) levels were determined in order to assess the glucose levels. Using a finger prick, a little drop of blood is applied to the test strip to determine the RBS level on the digital readout device. Sphygmomanometers were used to measure blood pressure. By briefly halting blood flow with an inflated cuff, the systolic and diastolic pressures are measured while the distinctive Korotkoff noises are audible. The formula to determine body mass index is as follows: BMI = weight in kilograms / (height in meters) $^{2.}$ A weighing machine that has been calibrated to zero before usage is used to determine the weight in "kilograms," and a measuring tape is used to determine the height in "meters." The person's BMI is then determined and classified as underweight, normal weight, overweight, or obese. Based on the most current information from their lab tests, the person's lipid levels are noted.

Every piece of information is meticulously input into Microsoft Excel and then examined using a range of Excel features. Tables, graphs, and charts are used to develop findings, and the results are correctly understood.

RESULTS



According to our study, among the age group of 31-40 years 6.1% of the female population and 8% of the male population was found to be of high risk. Among the age group of 41-50 years 17.7% of the female population and 24% of the male population was found to be of high risk. Among the age group of 51-60 years 30% of the female population and 58% of the male population was found to be of high risk. Among the age group of 61-70 years 43.75% of the female population and 28% of the male population was found to be of high risk. Among the age group of 71-80 years 61% of the female population and 60.5% of the male population was found to be of high risk to develop cardiovascular disease.



Among the study population, 33.7% of females and 31.9% of males had a positive family history of CVD. Risk of CVD caused by smoking was found to be 2.06% in females and 31.5% in males, alcoholism was found to be 3.2% in females and 33.4% in males, tobacco consumption was found be 4.1% in females and 21.01% in males. 18.5% of females and 16.7% of males were found to have high levels of stress. Poor quality of sleep was found to be prevalent in 26.3% in females and 14.7% in males. High salt intake and high saturated fat intake was seen in 34.5%, 38.2% of females and 36.9%, 40.8% of males respectively. Lack of physical activity was seen to be 37.4% of females and 34.2% of males.Some of the common symptoms of cardiovascular disease were also assessed. fatigue was assessed among females and males 23.8% and 16.3% respectively. dyspnea was found to be 36.6% in females and 35.7% in males. swelling was seen among 24.7% of females and 22.5 % of males. unintentional weight gain was also assessed among the population and was found to be 17.6% in females and 15.1% in males. Nocturia 27.9% in females and 31.5% in males and chest pain was found to be 33.7% in females and 36.5% in males.Parameters such as blood pressure and blood sugar levels were also assessed, and was found that blood pressure were found to high among 39.4% of females and 28.4% of males. After assessing the blood sugar levels 18.1% of females and 21.4% of males were found to have high blood sugar levels. Lipid profile was also assessed and it was found that total cholesterol was high among 35.8% of females and 38.9% of males and triglyceride was found to 3.7% in females and 5.4% in males. Low- density lipoprotein was found to be 22.6% in females and 17.8% in males.

DISCUSSION:

Cardiovascular disease, a group of disorders affecting the heart and blood vessels, is influenced by genetic, environmental, and lifestyle factors, including diabetes, high blood pressure, cholesterol, and obesity. In our study we are determining the gender difference while assessing the risk of cardiovascular disease.

According to the study conducted by Shailesh Desai et. al , found that Metabolic syndrome (MetS) is a marker for early preventive measures and a significant risk factor for the development of CAD in the future. Especially in postmenopausal women, MetS is more common due to central adiposity and physical inactivity. Menopause, which is associated with a considerable rise in the risk of cardiovascular disease (CVD) in women over the age of 55, coincides with the loss of estrogen. A number of vascular and biological variables are also significant, including smaller coronary vessels, a higher incidence of small vessel disease, and a reduced development of collateral flow. The goal of this review article is to provide important information on gender differences in CVD with specific emphasis on CAD. This is similar to our study where women were more at risk after 50 due to loss of estrogen.

And according to the study conducted by Khokhar et. al, it was found that When it came to the percentage of current alcohol and tobacco users, males were found to be much higher than females. The results of other investigations were comparable to this. In comparison to men, a statistically significant difference was observed in the amount of physical activity performed per week (less than 150 minutes), and a higher proportion of female individuals exhibited abdominal obesity. and This is similar to the findings of our particular study.

CONCLUSION

From this study, it is evident that the risk factors of CVD are significantly higher in rural areas and in terms of men and women, it was found that women were at higher risk of developing cardiovascular

disease than men as seen above. Therefore, increasing awareness, healthy lifestyle and preventive screening are some of the many ways that need to be undertaken.

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CONFLICT OF INTEREST

There are no conflicts of interest.

ABBREVIATIONS

BMI: Body mass index

CVD: Cardiovascular disease

RBS: Random blood sugar

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