

CORONARY ARTERY DISEASE, IS IT MORE FREQUENTLY EFFECTING YOUNGER AGE GROUP AND WOMEN?

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SUMMARY

Objective: Clinical audit for looking at the trend of coronary artery disease pattern in patients admitted to Cardiology unit, Lady Reading Hospital, Peshawar over a decade duration.

Material and methods: Ten years data from 1995 to 2004 was retrieved from the computerized database of department of Cardiology, Lady Reading Hospital Peshawar. The data was analyzed yearly for total admissions, deaths and, discharges due to coronary artery disease.

Results: Total admissions in Cardiology unit, Lady Reading Hospital Peshawar in 1995 were 5865, which increased to 8245 in 2004. Coronary artery disease patients in 1995 were 2053, which were 35% of the total admission that increased to 3025 making 37% of the total admission in 2004. Women were 27 % of the total CAD burden in 1995 that increased to 39 % in 2004. There is 50% increase of CAD in the female population. Mean age of patients with CAD was 49.70 years in 1995 that decreased to 47.38 years in 2004. In 1995 AMI occurred in 948 (16.16%) while in 2004 AMI were 1499 (18.18%) of the total admission. The proportion of female in AMI was 25% in 1995 that increased to 34% in 2004. Mortality from AMI in 1995 was 10.65% while that in 2004 was 11.8%. In 1995 patients with unstable angina were 479 (8.16%) compared to 883 (10.46%) in 2004. The mortality from CAD is almost static with 8.4% in 1995 and 8.7% in 2004.

Conclusion: There is significant increase in the frequency of CAD in the local population more so in the female population with a similar mortality over a decade.

Key words: Cardiology , CAD, Trends

INTRODUCTION

Once considered as disease of the affluent and developed countries, coronary artery disease is emerging as epidemic in the developing world in general and South Asia in particular. In South Asian immigrants to United States, their longevity of residence increases their risk many fold to develop CAD with a higher fatality rate compared to local reference population. Total variability in CAD risk in South Asia has not been explained by traditional risk factors, indicating the presence of other important, yet unidentified, risk factors. Asian Indian women have a higher rate of coronary artery disease (CAD) than do other ethnic groups, despite similar conventional risk factors and lipid profiles. In the developing world CAD was disease of the rich and

upper social class. It has been predicted with strong evidence that poor socioeconomic class of the developing world has to bear the brunt of CAD in the near future. CAD has risen greatly in the low income and middle-income countries with about 80 percent of the burden occurring in these countries. Pakistanis are part of ethnic group that have highest prevalence of CAD, manifesting at quite earlier age. We looked into these changing trends of CAD in the local population by analyzing data of the Cardiology Unit of our tertiary care hospital. Data in the present study has been taken from the computerized database of Cardiology Department, Lady Reading Hospital (LRH), Peshawar. Lady Reading Hospital is the largest tertiary care teaching hospital of the North West Frontier Province. Cardiology unit of the LRH is the only postgraduate teaching unit with cardiac catheterization facility in the province of NWFP. It receives patients of cardiovascular diseases from all over the province and nearby tribal areas.

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Aims of the Study:

To look into the trends of the coronary artery disease by analyzing ten-year data of our tertiary care hospital.

MATERIAL METHODS

Ten-years data from 1995 to 2004 was retrieved from the computerized database of the Department of Cardiology, Lady Reading Hospital, Peshawar. The computerized database of the department was first developed in 1993 and was then revised in 1998. FoxPro is the database for UNIX operating system with true multi-user environment used for data collection. The software is capable to generate patient codes, analysis and accounts related information. It is integrated with Echocardiography, ETT, ECG, Ward and Cardiac Catheterization Laboratory.

All patients admitted to the Cardiology unit of LRH with the diagnosis of Coronary Artery Disease (CAD) were included in the study. All patients admitted to the Cardiology unit are given a primary diagnosis of cardiovascular disease and a secondary diagnosis if other systems involved, from a list of diagnosis mentioned in the preformed Performa attached to the chart of every patient. Diagnoses other than mentioned in Performa are included in the miscellaneous group. The Performa also contain symptoms with duration, past and family history, personal history, physical sign, complications developed in hospital, ECG changes and values of other laboratory investigations and treatment received. The computer operator feed information to the computer from this Performa. The data was taken from this database and looked for trends in coronary artery disease pattern, its presentation, gender distribution and their mortality.

Statistical analyses of the results were carried out and any significant change in the frequency of disease over a decade period was looked for.

RESULTS

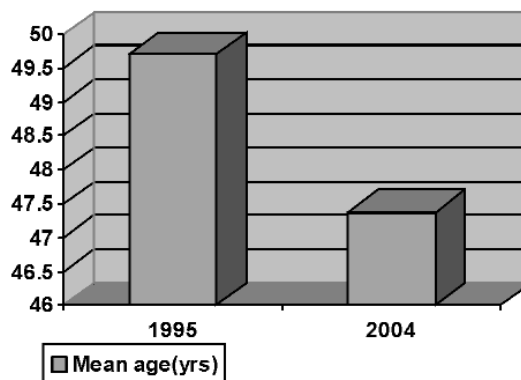
Total admissions in cardiology unit Lady Reading Hospital Peshawar in 1995 were 5865, which increased to 8245 in 2004. Coronary artery disease patients in 1995 were 2053 that were 35% of the total admission that increased to 3025 making 36.68% in

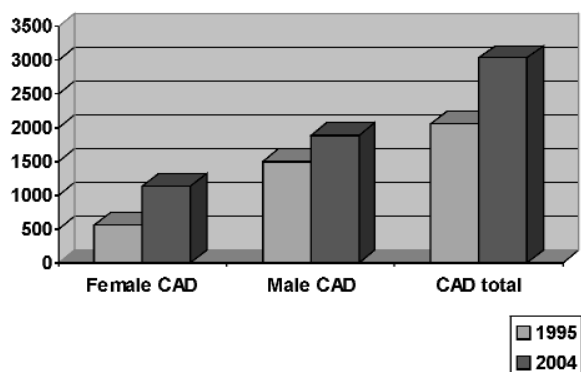
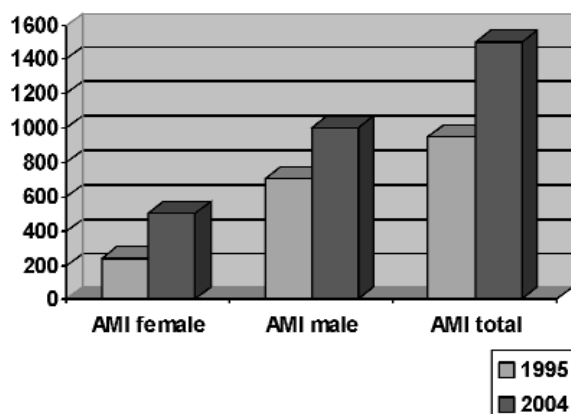
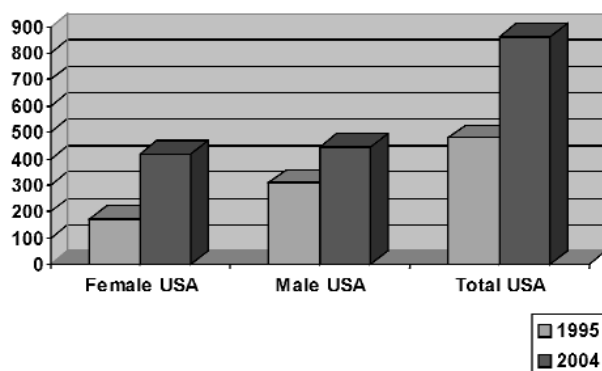
2004. Mean age of patients with CAD was 49.70+6.4 years in 1995 that decreased to 47.38+ 7.1 years in 2004. Female patients were 27% of the total CAD burden in 1995, which increased to 39% in 2004. There is almost 50% increase in the frequency of CAD in the female population in a decade duration. In 1995 Acute Myocardial Infarction (AMI) occurred in 875 (16.16%) while in 2004 AMI were 1499 (18.18%) of all the admissions. The proportion of female in AMI was 25% in 1995 that increased to 34% in 2004. There is 40% increase in the frequency of AMI in female population. Overall mortality of AMI in 1995 was 10.65% while that in 2004 was 11.8%. Mortality in women from AMI in 1995 and 2004 was 16.03% and 16.12% respectively compared to 8.9% and 9.60% in men for the same years. Women have persistently high mortality from AMI compared to men through out the decade. In 1995 patients admitted with unstable angina were 479 (8.16%) compared to 883 (10.46%) in 2004. Mortality from unstable angina was 5.22 % in 1995 and 5.56% in 2004. While the frequency of unstable angina has increased; its mortality has remained static over a decade duration. The overall mortality from CAD is almost static with 8.4% in 1995 and 8.7% in 2004.

Table 1: Comparison of mean age, USA and AMI between start and end of the decade

Years	Age in yrs (msd)	Acute MI		Unstable angina	
		Male Total (%)	Female Total (%)	Male Total (%)	Female Total (%)
1995	49.7+ 6.4	705(75%)	237(25%)	308(64%)	171(36%)
2004	47.38+ 7.1	999(66%)	500(34%)	444(52%)	419(48%)

Graphical presentation of mean age



Coronary Artery Disease and its gender distribution**Acute Myocardial Infarction and its gender distribution****Unstable Angina and its gender distribution****DISCUSSION**

According to WHO estimates in 2002, 16.7 million people around the globe die of cardiovascular disease each year. This is about one third of deaths globally⁶. Admissions for cardiovascular disease have almost doubled in the last decade in our cardiology unit according to the present data. Data from the

INTERHEART study showed that rate of CVD have risen greatly in the low income and middle-income countries with about 80 percent of the burden occurring in these countries⁴. Cardiovascular disease is now more prevalent in India and China (developing countries) than all the economically developed countries in the world combine⁶. Cardiovascular disease profile in Pakistan and other South Asian countries shows that Coronary Artery Disease and Cerebrovascular Accidents are emerging and advancing disease in these regions⁷. As early as in 1963, Pirzada from Mayo Hospital Lahore⁸, in 1967 Beg from JPMC Karachi⁹ and in 1973 Nasir from Lady Reading Hospital Peshawar¹⁰, reported significant increase in the number of patients hospitalized for coronary artery disease. Pakistani are part of ethnic group which suffers highest prevalence rates of coronary artery disease compared to any throughout the world-CAD manifest at a younger age with a significant narrowing sex difference⁵. This trend is seen in the present data with mean age for CAD decreasing and the proportion of female CAD patients increasing. The mean age for CAD in our study decreased from 49.70 years in 1995 to 47.38 years in 2004. Ishaq M and colleagues reported in 2003 from Karachi a mean age of 55.39 years in their 110 consecutive CAD patients¹¹.

Nearly one hundred thousand individuals suffered an acute myocardial infarction in the calendar year 2002. This is against the background of only seven patients suffering heart attack being admitted during a five year period (1944-1948) to the Mayo Hospital Lahore, the only major medical facility providing health care to almost all the population of the region¹². Despite impressive advances in diagnosis and management over the last four decades, ST elevation myocardial infarction (STEMI) continues to be a major public health problem in the industrialized world and is becoming an increasingly important problem in developing countries^{13,14}.

There is significant increase in the frequency of CAD in the female population in our data. The burden of CAD in women has received considerable interest in the last decade¹⁵. With advancement in therapeutic intervention, the overall cardiovascular mortality has declined steadily in men over the last 20 years; however, the rate has remained the same in women¹⁶. Women will continue to experience

disproportionately high mortality from cardiovascular disease 17. During the past three decades, numerous reports from single-center databases, multicenter registries, and a few randomized control trials in patients with CAD have noted an increase morbidity and mortality in women 18, 19. According to Framingham data, 63% of women who died suddenly of cardiovascular disease had no previous symptoms of the disease 20. By 2040, women will represent a higher (54.6 %) of the cardiovascular deaths than men 4. Jaume Marrugat et al reported that women had more anterior location of AMI, more associated co morbid conditions and higher immediate and 28 days mortality than men 21. Our study also represents the above reported trends. In our data the mortality of women from CAD in general and acute myocardial infarction in particular, has remained higher than men throughout the decade duration. The frequency of AMI has increased by 8% in women against 2% increase in men. Average mortality from AMI in these ten years in our data in women is 16% against 10% in men.

In the developing countries due to rapid acculturation and improvement in the economic condition, the urban dwellers may believe that a diet high in energy and fat, similar to that of western affluent countries, is a symbol of their new status. Being overweight is often regarded as a sign of wealth and wellbeing and is not considered as a risk factor for coronary heart disease. High blood pressure, high blood Cholesterol and obesity are likely to become more prevalent in the developing countries. Available data suggest that economically developing countries are being burdened with escalating epidemics of coronary heart disease and stroke morbidity and mortality so that urgent steps need to be taken to treat and modify risk factors for CAD 22. Taken these data into consideration, considerable effort should be taken to prevent CAD in our population. New risk factors making our people more prone to CAD identified and taken care of. The increase frequency of CAD in women should be addressed both at government and public level. Further epidemiological studies are needed to penetrate into this important issue. Steps are needed at multiple levels to make our public more aware and understand that women need physical activities and fitness to combat this escalating epidemic of CAD in this population.

CONCLUSION

There is significant increase in the frequency of CAD in the local population more so in the female population with a similar mortality over a decade period. Mortality of women from CAD in general and acute myocardial infarction in particular is much higher than men throughout the decade duration. There is an increasing trend of younger patients suffering from CAD throughout the decade.

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