ACUTE MYOCARDIAL INFARCTION;
FREQUENCY OF FAMILY HISTORY OF ISCHEMIC HEART DISEASE (IHD) AND RELATED RISK FACTORS IN THE FIRST DEGREE RELATIVES

Dr. Shahzad Alam Khan1, Mr. Sohail Saifdar2, Dr. Asna Ijaz3, Dr. Ijaz-Ul-Haque Taseer4

ABSTRACT... Objective: To determine the frequency of family history of IHD and related risk factors in the first degree relatives of patients suffered from acute myocardial infarction (AMI). Study Design: Descriptive study. Setting: PMRC Research Centre, Nishtar Medical College, Multan, Cardiology unit Nishtar Hospital Multan and Chaudhry Pervez Elahi Institute of Cardiology, Multan. Duration: One year from July 2011 to June 2012. Material and methods: In this descriptive study 331 patients of AMI of either sex and age ≥ 20 years admitted in Cardiology unit of Nishtar Hospital Multan and Chaudhry Pervez Elahi Institute of Cardiology Multan were registered. For data collection non-probability convenient sampling technique was used. Informed consent was taken from each patient. The information were recorded in a pre-designed questionnaire. The data were analyzed through SPSS-11. Results: Mean age of the study cases was 54.99±11.25 years (Minimum age was 20 years and maximum was 90 years). Two hundred sixty four (79.8%) were male and 67 (20.2%) were female patients and male to female ratio was 3.9:1. Out of these 331 patients 111 (33.6 %) were having positive family history of IHD. In these 111 (33.6 %) cases history of diabetes was seen in 45 (40.5 %), 43(38.8 %) had history of hypertension and history of hyper-cholesterolemia was present in 23 (20.7 %) of cases. Conclusions: The family history of IHD in addition to traditional risk factors such as hypertension, hyperlipidemia, diabetes mellitus and smoking is itself an important risk factor for IHD. Relatives of the young patients with IHD should be considered as high risk group and it calls for close surveillance of their first degree relatives and early intervention. All their family members should be advised lifestyle modification, appropriate management of risk factors and regular follow up of even apparently healthy descendents.

Key words: Ischemic Heart Disease, Family History, Acute Myocardial Infarction.

INTRODUCTION

Familial or inherited tendencies to develop certain diseases are very common. Some have many family members affected with cancers while others are prone to develop heart attacks and strokes. IHD, diabetes mellitus, hypercholesterolemia and hypertension are very important diseases which have great propensity to run in the family. The propensity for family tendency might be genetically determined. The inherited genes may carry 25% risk for the development of various diseases. Ischemic heart disease is a health burden in our society. About 600000 Americans die of heart diseases annually, this represents almost 25% of all US deaths. It has high tendency to run in the families and a positive family history of IHD is a major risk factor for ischemic heart disease5-7.

The innate susceptibility to develop ischemic heart disease was suggested in Framingham cohort study8-11. If a father develops heart attack before the age of 55 and mother before the age of 65 years, this positive family history becomes very significant for the next generation and mere presence of parental and maternal history for premature myocardial infarction may increase the risk to 7 folds in descendents12. Thus the history of IHD in the first degree relatives is a risk factor for this disease and risk is greater in women than men13. The study by Sintonen et al13, shows a strong heritable component for IHD and related risk factors. In young and middle aged women having first degree relative with heart attack under the age of 55 the IHD risk increases by 33% and 2 relatives increase the risk by 50%14.
IHD is also an important cause of sudden death and this also has family predilection, a history of sudden death due to IHD in parents of cohorts was found to be associated with 30% increased risk for ischemic heart disease in the families. Subjects with family history of sudden cardiac death have also increased risk of dying suddenly during an acute coronary event. Hypertension also tends to run in the family it is through the same genes that can pre-dispose a person to hypertension, heart disease or stroke. Diabetes mellitus also runs in the family and type II has stronger genetic linkage than type-I. Diabetes mellitus is also an important risk factor for MI. The women with type II diabetes are at much greater relative risk for MI than men even when adjusted for other risk factors. Hyperlipidemia is an established risk factor for IHD and about 1 out of 500 people in the USA inherit this condition, so early detection of this disorder can help to reduce the burden of heart disease in the persons with hyperlipidemias and also in the other family members. The present study was conducted to see the frequency of family history of IHD and related risk factors (especially hypertension, diabetes mellitus and hyperlipidemia) in the first degree relatives of acute myocardial infarction patients. This study will highlight the importance of family history of ischemic heart disease and related risk factors like diabetes mellitus, hypertension and hyperlipidemia in patients of acute MI and may justify the close surveillance of first degree relatives and early management of affected.

MATERIAL AND METHODS

In this descriptive study 331 patients of acute MI of either sex and age ≥ 20 years admitted in Cardiology unit, Nishtar Hospital Multan and Chaudhary Pervez Elahi Institute of Cardiology Multan were registered. The duration of this study was one year from July 2011 to June 2012. For data collection non-probability convenient sampling technique was used. Informed consent was taken from each patient. The information were recorded in a pre-designed questionnaire. The data were analyzed through SPSS-11.

RESULTS

A total of 331 patients of acute MI were registered for this study. Mean age of the study cases was 54.99±11.25 years (Minimum age was 20 years and maximum was 90 years). (Table-I). Two hundred sixty four (79.8%) were male and 67 (20.2%) were female patients and male to female ratio was 3.9:1 (Figure-1). Out of these 331 patients 111 (33.6 %) were having family history of IHD. In these 111 (33.6 %) cases history of diabetes was seen in 45 (40.5 %), 43(38.8 %) had history of hypertension and history of hypercholesterolemia was present in 23 (20.7 %) of cases.

<table>
<thead>
<tr>
<th>Age Groups (In years)</th>
<th>Frequency</th>
<th>%age</th>
</tr>
</thead>
<tbody>
<tr>
<td>20-30</td>
<td>5</td>
<td>1.5</td>
</tr>
<tr>
<td>31-40</td>
<td>26</td>
<td>7.8</td>
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<tr>
<td>41-50</td>
<td>106</td>
<td>32.1</td>
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<tr>
<td>51-60</td>
<td>107</td>
<td>32.4</td>
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<tr>
<td>61-70</td>
<td>65</td>
<td>19.6</td>
</tr>
<tr>
<td>More than 70</td>
<td>22</td>
<td>6.6</td>
</tr>
<tr>
<td>Total</td>
<td>331</td>
<td>100%</td>
</tr>
</tbody>
</table>

Table-I. Age wise distribution of study cases (n=331)

DISCUSSION

Ischemic heart disease (IHD) is an important cause of morbidity and mortality. In the past few years the incidence of IHD has halved in the west.
but it has become doubled in the subcontinent and it has become the problem of relatively young age and about half of the cases occur under age of 50 years. Diabetes mellitus, hypertension, hypercholesterolemia, smoking and positive family history of IHD are important risk factors for IHD. IHD affects both male and female, however females have some protection from IHD during the reproductive life but after the menopause and if they have diabetes before the menopause then this protection is lost.

Positive family history of certain diseases definitely draws attention to the relevant diseases in descendents. It is evident from epidemiological studies that family history of IHD especially parental history of IHD is an important risk factor for the family. Some authors believe this familial risk can be clustered with other established risk factors, whereas others describe positive family history as an independent risk factor. If a father suffers from heart attack before the age of 55 and mother before the age of 65 this family history becomes important for the next generation and positive family history of IHD in both parents increases the risk of IHD to 7 folds in the descendents. Prevalence of positive family history up to 75% has been reported in some studies. Hoseini et al have described the family history of IHD in 14.9 % of the cases while Faisal et al have described positive family history in 32 % of the cases. In present study we evaluated family history and related risk factors. In our study the family history of IHD was seen in 33.6 % of the cases. The results of our study are close to the results reported by Faisal et al. Similarly, Nadeem et al in their study have also described family history in 43 % of the patients and has described it as another important risk factor, the same has also been highlighted in another study from India. This has been supported by another study in which those young subjects were having greater risk of coronary artery disease (CAD) who also had positive family history of CAD. The young subjects having family history of CAD have greater risk of sub-clinical athero-sclerosis and have high prevalence of coronary artery calcium in the presence of other metabolic risk factors than those without family history. Clustering of risk factors synergize effect of each other and family history of IHD is also an important risk factor and these patients have IHD at younger age. In our index cases family history of diabetes was seen in 40.5% of the cases, family history of hypertension in 38.8% of the cases and family history of hypercholesterolemia in 20.7% of the cases.

CONCLUSIONS
The family history of IHD in addition to traditional risk factors such as hypertension, hyperlipidemia, diabetes mellitus and smoking is itself an important risk factor for IHD. Relatives of the young patients with IHD should be considered as high risk group and it calls for close surveillance of their first degree relatives and early intervention. All their family members should be advised life style modification, appropriate management of risk factors and regular follow up of even apparently healthy descendents.

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REFERENCES


12. Simon J, Rosolova H. Family history-and independent risk factors for coronary heart disease, it is time to be practical. Eur Heart J 2002; 23: 1637-1638.


