A STUDY OF COMBINATION OF MULTIPLE RISK FACTORS IN MYOCARDIAL INFARCTION IN YOUNG

INTRODUCTION:
Coronary Artery Disease (CAD) is the major cause of morbidity and mortality throughout the world. The pattern of Coronary artery disease is changing in India which occurs a decade earlier than the other countries. The highest proportion of cases of first acute myocardial infarction at age 40 years or younger was in men from the Middle East (12.6%), Africa (10.9%), and south Asia (9.7%) and the lowest proportion was in women from China and Hong Kong (1.2%), South America (1.0%), and central and eastern Europe (0.9%). The risk in India is 3-4 times commoner than Americans, 20 times higher than Japanese. In India myocardial infarction is becoming more common in young patients and often having triple vessel disease. Reinfarction rate is three times higher and two times higher rate of mortality in India.

Although uncommon entity, it constitutes an important problem for the patient and the treating physician because of the devastating effect of this disease on the more active lifestyle of young adults. Young patients have different risk factor profiles, and prognosis when compared to older patients. A variety of other possible contributing factors that include smoking, sedentary lifestyle, psychological stress also women have been implicated for the pathogenesis of myocardial infarction. The clinical presentation is also different from that of older patients. In majority of cases, a sudden myocardial infarction or unstable angina is likely to develop clinical atherosclerotic event and more do so in patients with multiple risk factors.

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EXCLUSION CRITERIA:
1. All patients who are presenting only with stable or unstable angina
2. Patients having old myocardial infarction
3. Patients' age more than 40 years.

RESULTS:
Out of 50 patients included in the study, 44 (88 %) were males and 6 (12%) were females. Most common age group were between 35-40 years correlating with Nepalese. 37 (72%) having family history of ischemic heart disease. All 50 patients (100%) were obese, 41 (82%) having dyslipidemia, 23 (46%) had hyper tension, 7 (14%) patients were diabetics, 20 (40%) had sedentary life style. 5 women out of 6 and 30 men out of 44 had high waist to hip ratio. Majority of the patients having more than one risk factor.

KEYWORDS:
Ischemic heart disease, Coronary artery disease, Obesity, Dyslipidemia, Hypertension, Diabetes mellitus, Waist circumference, BMI, Troponin I and T.
1. RISK FACTORS:

<table>
<thead>
<tr>
<th>Risk Factor</th>
<th>Percentage</th>
</tr>
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<tbody>
<tr>
<td>Obesity</td>
<td>18 (36 %)</td>
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<tr>
<td>Dyslipidemia</td>
<td>41 (82 %)</td>
</tr>
<tr>
<td>Hypertension</td>
<td>23 (46 %)</td>
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<tr>
<td>Diabetes Mellitus</td>
<td>7 (14 %)</td>
</tr>
<tr>
<td>Sedentary Life style</td>
<td>20 (40%)</td>
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2. COMBINATION OF RISK FACTORS ANALYSIS:

<table>
<thead>
<tr>
<th>Combination</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Obesity and Dyslipidemia</td>
<td>30 (60%)</td>
</tr>
<tr>
<td>Obesity and Hypertension</td>
<td>26 (52%)</td>
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<tr>
<td>Obesity and Diabetes Mellitus</td>
<td>5 (10%)</td>
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DISCUSSION:

In the present study of multiple risk factors analysis in the young myocardial infarction patients, dyslipidemia was observed in all 41 (82 %) patients, which is correlating with VNS study (92.9%) in 1971. Association of Obesity with dyslipidemia ranks highest among the risk factors.

**Obesity and Dyslipidemia:**
Combination of obesity and dyslipidemia were observed in 30 (60%) patients, which were very important risk factors in the development of coronary artery disease. Obesity is associated with increased blood volumes, cardiac output and left ventricular filling pressure. When the additional effect of dyslipidemia was added, it accelerates atherogenic process especially central obesity is associated with an atherogenicity.

**Obesity and Hypertension:**
It is observed that 23 (46%) of the patients had hypertension, similar observations have been found in other studies also i.e. Marty AK Das et al (28%), Nitter Haugh et al (24%), Dwivedi et al (51.42%) in 2000. In present study 26 (52%) patients were found to have high blood pressure and obesity, the probable reason being the accelerated atherosclerosis, increased left ventricle mass, left ventricle tension and stroke work. Hypertension is an individual risk factor, next only to dyslipidemia, when it is combined with obesity it is causing higher incidence of myocardial infarction.

**Obesity and Diabetes Mellitus:**
In the present study 7 (14%) of patients were found to have diabetes. The reason being it impairs endothelial and smooth muscle function and appears to increase leukocyte adhesion to vascular endothelium, a critical early step in atherogenesis. And also insulin resistance also produces a prothrombotic state due to increased level of PAI-1 and fibrinogen, similar observations have been made in other studies also i.e. Marty AK Das AK et al (18%), PK Biswas A (9.7%), VSN study (3%) in 1986, Dwivedi et al (7.14%) in 2000, Chennai study (18%) in 1991. Diabetes is associated with a 2- to 3-fold increase in the likelihood of developing CVD, glucose intolerance is also associated with a 1.5-fold increase in the risk of developing cardiovascular disease.

**Obesity, Dyslipidemia, Hypertension and Diabetes Mellitus:**
In our study combination of Obesity, Dyslipidemia and Diabetes Mellitus were observed in 5 (10%) patients and also similar number of patients had all risk factors like Obesity, Dyslipidemia, Hypertension and Diabetes Mellitus. smoking, diabetes mellitus, hypertension, and hypercholesterolemia. Diabetes is also associated with a higher probability of presenting with hypertriglycerideridemia, low HDL-C, high blood pressure, and obesity, which usually precede the onset of diabetes.

**CONCLUSIONS:**

- Dyslipidemia is most common risk factor for Myocardial infarction.
- Combination of Dyslipidemia and Obesity were major risk factors for Myocardial infarction for young.
- The effect of risk factors is multiplicative rather than additive. Prevention can aim at modifying the risk factors like reduction of weight, dietary measures, control of hypertension and diabetes.

**References:**