LETTER TO EDITOR

CORRELATION OF BMI WITH FASTING BLOOD GLUCOSE IN PERIMENOPAUSAL WOMEN

Sir,

India is undergoing a rapid epidemiological transition with increased urbanization and socio-economic development which has resulted in a dramatic change in lifestyle, consisting of physical inactivity, diet rich in fat, sugar and salt coupled with a high level of mental stress. This has led to increased incidence of lifestyle diseases like hypertension, type 2 Diabetes Mellitus dyslipidemia, obesity and ischemic heart diseases.

The association between these conditions is so close that many experts consider obesity and type 2 D.M to be different ends of the same spectrum therefore together called as ‘diabesity’ (1). For this reason obesity can be viewed as a prediabetic condition.

American Diabetes Association (ADA) recommends screening of all individuals more than 45 yrs, every 3 years as early detection of the disease which may help to improve its outcome and continues to recommend the Fasting Blood Glucose (100-125 mg/dl) as the preferred diagnostic tool because it is more convenient, less expensive and still more reliable (2). Obesity is more common among women than men especially in the age group of 45-49 years i.e at age of menopausal transition (3). Prevalence of IFG also seems to be higher in women than men in the Indian population (4).

It is observed that FBG levels in preobese and obese group are higher than control group. (Table I) and Significant correlation was noted between BMI and FBG levels in obese group and when all group are combined (Table II).

The link between obesity and type 2 D.M. is explained by the following way. As body weight increases, insulin resistance increases i.e. there is decreased ability of insulin not only to move glucose into fat

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Control group</th>
<th>Study group preobese</th>
<th>Study group obese</th>
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<tbody>
<tr>
<td>BMI</td>
<td>Gr. I 18.50-24.99 kg/m² (n=100)</td>
<td>Gr. Ha 25-29.99 kg/m² (n=100)</td>
<td>Gr. Hb BMI &gt;30 kg/m² (n=100)</td>
</tr>
<tr>
<td>FBG in mg/dl</td>
<td>81.12±6.34</td>
<td>84.62±10.08*</td>
<td>86.7±10.68*</td>
</tr>
</tbody>
</table>

*Significant

TABLE I : Mean fasting blood glucose level in study and control groups.

<table>
<thead>
<tr>
<th>Groups</th>
<th>Correlation between BMI &amp; FBS fasting (r)</th>
<th>P value</th>
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</thead>
<tbody>
<tr>
<td>Control (n=100)</td>
<td>0.088</td>
<td>0.384</td>
</tr>
<tr>
<td>Preobese (n=100)</td>
<td>0.092</td>
<td>0.362</td>
</tr>
<tr>
<td>Obese (n=100)</td>
<td>0.25</td>
<td>0.012*</td>
</tr>
<tr>
<td>All groups (n=300) together</td>
<td>0.29</td>
<td>0.0001*</td>
</tr>
</tbody>
</table>

*Significant
cell and muscle cell but also to shut off glucose release from the liver (5). Various circulating chemicals like leptin, adiponectin, resistin, TNFα produced by adipocytes (mainly abdominal) modulate insulin secretion and insulin action which may contribute to insulin resistance (6). This means that fat depots are not inert lumps but are actually endocrine tissues.

In middle aged women with Type 2 D.M. apart from diet and exercise, there could be other factors responsible for increased weight. Natural menopause leading to estrogen deficiency resulted in accelerated loss of fat-free mass with increased adiposity leading to obesity, depression due to stressful life events and age-related insulin secretary dysfunction may have a role in the alterations in glucose metabolism (7).

Reduction in amount of body fat increases the sensitivity to endogenous insulin, diminishes the need for excessive secretion of insulin by beta cells and prevents beta cell exhaustion (9).

It is very important to note that people with impaired fasting glycaemic can change their life style to delay the onset of diabetes (10). Thus weight gain and increased IFG correlates well and supports our study of higher percentage of IFG incidence with increased BMI. General public does not recognize the connection between overweight or obesity with diabetes so greater efforts for educating the obese and preobese are needed.

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REFERENCES


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