Introduction

Gestational diabetes mellitus (GDM) is a subtype of diabetes mellitus which occurred during pregnancy {Ku, 2011 #1}. GDM is carbohydrate intolerance with incidence rate approximately 1-14%. Women with GDM are prone to type2 diabetes mellitus hypertension, dyslipidemia, metabolic syndrome and cardiovascular disease.
Fasting blood glucose, triglyceride, total cholesterol, low density lipoprotein cholesterol and high density lipoprotein cholesterol and high density lipoprotein were measured in same day which ultrasonography examination was done.

**Ultrasoundography**

Carotid intima-media thickness and infra abdominal aorta diameter were assessment by a Bi-mode ultrasound (simens G40) scanner with linear high frequency transducer (7.5 MHZ). CIMT examination was done in supine position according the American echocardiography recommendation. {Stein, 2008 #19} Three segment were selected; proximal internal carotid 1cm lower the flow driver, 1cm upper the follow driver as bifurcation and 2cm or more in common carotid above the flow driver and measurements was done bilaterally. At the end CIMT was considered as average of the mean CIMT of the 3left and 3 right segments. For assessment of infra-renal abdominal aorta minimum and maximal transverse as well as anterior-posterior diameters were measured in supine position. The ultrasonography study was done by an expert radiologist blinded to the clinical data.

**Results**

The clinical characteristics, Laboratory test findings of the study groups were reveled in table 1. Mean participant age BMI, systolic blood pressure, diastolic blood pressure, TG, cholesterol, LDL and HDL are not shown significant statistically difference.FBS between tow group reveal significant statistically difference ($P$-value <0.05). In comparison with control group GDM group revealed no significant difference in mean CIMT and infra-renal abdominal aorta diameter. Control group had a lower infera-renal abdominal aorta than the GDM group significantly also Pearson correlation analysis shows association between infera-renal abdominal aorta diameter and cholesterol and...
Carotid intima-media thickness in GDM

Table 1. Clinical characteristics, Laboratory test findings of The GDM and non GDM participant

<table>
<thead>
<tr>
<th>Characteristics</th>
<th>GDM group (N=20)</th>
<th>Non GDM group (N=20)</th>
<th>P-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age (Y)</td>
<td>26.35±3.10</td>
<td>25.6±3.113</td>
<td>0.452</td>
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<tr>
<td>Body mass index(kg/m²)</td>
<td>25.53±2.37</td>
<td>26.4±4.58</td>
<td>0.429</td>
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<tr>
<td>Systolic BP (mm Hg)</td>
<td>115.35±10.4</td>
<td>114.5±6.07</td>
<td>0.751</td>
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<tr>
<td>Diastolic BP (mm Hg)</td>
<td>78.75±7.20</td>
<td>74.35±6.99</td>
<td>0.57</td>
</tr>
<tr>
<td>Serum HDL (mg/dL)</td>
<td>54.90±8.22</td>
<td>65.15±7.45</td>
<td>0.618</td>
</tr>
<tr>
<td>Serum LDL (mg/dl)</td>
<td>83.05±13.86</td>
<td>89.45±154.2</td>
<td>0.176</td>
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<tr>
<td>Serum triglyceride (mg/dl)</td>
<td>113.45±67.23</td>
<td>94.85±26.65</td>
<td>0.261</td>
</tr>
<tr>
<td>Serum cholesterol (mg/dl)</td>
<td>161.05±21.48</td>
<td>161.8±18.72</td>
<td>0.907</td>
</tr>
<tr>
<td>Fasting blood sugar(mg/dl)</td>
<td>98.15±12.10</td>
<td>86/70±4.15</td>
<td>0.001</td>
</tr>
</tbody>
</table>

Table 2. CIMT and infra-renal abdominal aorta diameter (IAAD) in GDM and non GDM participant

<table>
<thead>
<tr>
<th></th>
<th>GDM</th>
<th>Non GDM</th>
<th>P-Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>CIMT (cm)</td>
<td>0.6±0.06</td>
<td>0.64±0.06</td>
<td>0.816</td>
</tr>
<tr>
<td>IAAD (mm)</td>
<td>12.43 ± 2.57</td>
<td>12.21±1.37</td>
<td>0.738</td>
</tr>
</tbody>
</table>

LDL in non GDM participate but other factors (HDL, TG, FBS) is not associated with IAAD.

Discussion

Pregnancy is related to increase insulin resistance. GDM patients are prone to type2 diabetes mellitus that leads to coronary artherosclerosis. [Sullivan, 2012 #20] Although most of the studies reveal association between ITM and GDM [Akinci, 2014 #21; Atay, 2014 #22; Bo, 2007 #23; Caliskan, 2014 #24; Freire, 2012 #26; Gunderson, 2012 #27], in current study no significant difference was detected. Corresponding to the results of Yun Hyiki (1) study which may be resulting from study in Asian population compared to the western study.

Obesity is a major factor affecting CIMT. Although BMI in current study is not significantly difference between two groups. Women with lower BMI in control group had lower infera-renal abdominal aorta diameter. Also criteria used for diagnosis GDM may affected the influence of GDM on CIMT. (27, 28)

The infera-renal abdominal aorta diameter is associated with cholesterol an LDL in non GDM participant. The major limitation of this study was not enough sample size.

Conclusion

Our study suggested GDM may not relate to CIMT and infera-renal abdominal aorta diameter. Also current study revealed Women with history of GDM are prone to having impaired fasting glucose.

References


Carotid intima-media thickness in GDM