WEIGHT AND WEIGHT VARIABILITY CORRELATION WITH SUBCLINICAL INFLAMMATION AND COMORBIDITIES IN TYPE 2 DIABETES, RETROSPECTIVE ANALYSES OVER A DECADE


BACKGROUND

Obesity and overweight management in type 2 diabetes (T2DM) improve the glycemic control and is associated to positive results in other cardiovascular risk factors.

OBJECTIVES

Evaluate the impact of weight and weight variability in subclinical inflammation and in the comorbidities of T2DM patients, over the last decade.

METHODS

Selection

• Diagnosis of T2DM
• Visits to our outpatient clinic between January 2003 and December 2014.

Inclusion

• A minimum follow-up of 2 years
• A minimum of 6 visits during the follow-up

Exclusion

• Age under 18 years old
• Secondary diabetes
• BMI > 40 Kg m²

Description statistical methods were used, T-test and Pearson’s correlation where used for continuous variables. Statistical significance was admitted to p values < 0.05.

RESULTS

• Total of patients accessed: 1900 patients

• Follow-up time, mean: 7.3 ± 1.1 (2–9) years

• Age, mean at first visit: 61.2 ± 0.3 years old

• Gender
  - 1131 Females (60%)
  - 769 males (40%)

Population analysis

• Descriptive analysis of the variables assessed:

<table>
<thead>
<tr>
<th>Variable (units)</th>
<th>Weight Variance (STD)</th>
<th>BMI Variation (STD)</th>
<th>SBP (mmHg)</th>
<th>DBP (mmHg)</th>
<th>Chol (mg/dl)</th>
<th>TGL (mg/dl)</th>
<th>HDL (mg/dl)</th>
<th>LDL (mg/dl)</th>
<th>Non-HDL (mg/dl)</th>
<th>Fasting Glucose (mg/dl)</th>
<th>F. Gluc. Variation (STD)</th>
<th>HbA1c (%)</th>
<th>HbA1c Variation (STD)</th>
</tr>
</thead>
<tbody>
<tr>
<td>HDL Cholesterol</td>
<td>46.1</td>
<td>29.0</td>
<td>151.7</td>
<td>79.6</td>
<td>81.9</td>
<td>106.0</td>
<td>92.6</td>
<td>1, 1.3</td>
<td>0.007</td>
<td>0.000</td>
<td>0.000</td>
<td>0.000</td>
<td>0.000</td>
</tr>
<tr>
<td>Triglycerides</td>
<td>173.8</td>
<td>29.0</td>
<td>5.4</td>
<td>4.9</td>
<td>8.0</td>
<td>8.0</td>
<td>8.0</td>
<td>2.40</td>
<td>0.003</td>
<td>0.004</td>
<td>0.004</td>
<td>0.004</td>
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</tr>
<tr>
<td>Diastolic BP</td>
<td>114.7</td>
<td>29.0</td>
<td>0.5</td>
<td>0.5</td>
<td>0.5</td>
<td>0.5</td>
<td>0.5</td>
<td>0.005</td>
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</tr>
<tr>
<td>Uric Acid</td>
<td>39.6</td>
<td>29.0</td>
<td>0.0</td>
<td>0.0</td>
<td>0.0</td>
<td>0.0</td>
<td>0.0</td>
<td>0.004</td>
<td>0.004</td>
<td>0.004</td>
<td>0.004</td>
<td>0.004</td>
<td>0.004</td>
</tr>
<tr>
<td>Monocytes</td>
<td>78.6</td>
<td>29.0</td>
<td>0.0</td>
<td>0.0</td>
<td>0.0</td>
<td>0.0</td>
<td>0.0</td>
<td>0.001</td>
<td>0.001</td>
<td>0.001</td>
<td>0.001</td>
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<tr>
<td>Neutrophils</td>
<td>13.2</td>
<td>29.0</td>
<td>0.0</td>
<td>0.0</td>
<td>0.0</td>
<td>0.0</td>
<td>0.0</td>
<td>0.003</td>
<td>0.003</td>
<td>0.003</td>
<td>0.003</td>
<td>0.003</td>
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</tr>
<tr>
<td>WBC Count</td>
<td>8.0</td>
<td>29.0</td>
<td>0.0</td>
<td>0.0</td>
<td>0.0</td>
<td>0.0</td>
<td>0.0</td>
<td>0.12</td>
<td>0.12</td>
<td>0.12</td>
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<td>0.12</td>
<td>0.12</td>
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</tbody>
</table>

Pearson’s correlations results indicate a statistically significant relationship between BMI and BMI variation for Systolic Blood Pressure (p < 0.001 and p = 0.036), Fasting Glucose and its variation (p=0.004 and p=0.01).

In this analysis there was also a statistically significant relationship between BMI and Diastolic blood pressure (p < 0.001), Creatinine (p=0.0049), Uric acid (p < 0.001), Albuminuria (p < 0.01), HDL (p < 0.015), Triglycerides and non-HDL cholesterol (p < 0.01), Monocytes (p=0.008), waist (p=0.00) and Pulse pressure (p=0.012).

Despite the limitations inherent to the fact that it is a retrospective study, this analysis allows an insight to the issue due to the data volume. The BMI and its variability in this population was strongly associated with the variation of HbA1c, chronic inflammatory markers, creatinine and lipid panel, particularly in non-HDL cholesterol.

CONCLUSIONS