ADIPONECTIN AND TUMOR NECROSIS FACTOR ALPHA LEVELS, AND THEIR CORRELATIONS WITH ENDOTHELIAL DYSFUNCTION IN CENTRAL OBESITY

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Abstract: Background: In obesity, macrophages that infiltrate into adipose tissues create an inflammatory condition. Besides that, adipose tissues release proinflammatory cytokines such as TNF alpha. These cytokines promote LDL oxidation by ROS, and accelerate NO degradation resulting in endothelial dysfunction. Adiponectin which could prevent endothelial dysfunction is decreased secondarily to TNF alpha’s action. Objectives: To determine the serum levels of TNF alpha and adiponectin, and their correlations with the endothelial dysfunction. Methods: This was an observational, descriptive, and analytic study with cross sectional. Samples were students of senior high schools in Manado. Sampling method was carried out consecutively until the required number was enough. Data consisted of age, blood pressure, waist circumference, body weight, lipid profile, creatinin, TNF alpha, adiponectin, and albumin creatinine ratio. We used the Spearman Correlation to analyze the data. Result: Over a 4-month period, there were 35 obese male subjects with ages of 16-18 years old. The average of body weights was 83.23 kg, and of waist circumferences was 103.94 cm. Endothelial dysfunction was found in 5.72% of samples, high levels of TNF alpha in 68.57% of samples, and low levels of adiponectin in 62.8% of samples. We found a significant positive correlation between TNF alpha and endothelial dysfunction (r=0.554, p<0.000), and an inverse correlation between adiponectin level and endothelial dysfunction (r = -0.349, p=0.020). Conclusion: There were high levels of TNF alpha in 68.57% of samples and low levels of adiponectin in 62.8% of samples. There was a significant correlation between TNF alpha level and endothelial dysfunction. There was an inverse correlation between adiponectin level and endothelial dysfunction.

Key words: obesity, adiponectin TNF alpha, endothelial dysfunction