

## Correlation between Circulating Betatrophin Level and Insulin Sensitivity in Centrally-Obese Male Subjects

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### Objective

To investigate relationship between serum betatrophin level and insulin sensitivity in centrally-obese male subjects compared to age-matched non-obese subjects.

### Materials and Methods

This cross-sectional comparative study was undertaken in 34 centrally-obese [Age: 48.9±6.2 yrs, Body Mass Index (BMI): 26.8±2.4 kg/m<sup>2</sup>, waist circumference (WC): 98.2±6.3 cm] and 34 non-obese subjects [Age: 49.3±5.3 yrs, BMI: 19.7±2.8 kg/m<sup>2</sup>, WC: 76.0±7.8 cm]. Insulin sensitivity and  $\beta$ -cell functions were assessed by homeostasis model assessment method (HOMA). Fasting plasma glucose was measured by glucose oxidase method. Serum insulin and betatrophin levels were determined by ELISA method.

### Results

Significant increase of HOMA-IR in centrally-obese subjects compared with non-obese subjects [median and interquartile range; median (IQR): 4.5 (3.4-6.7) vs. 1.94 (1.3-3.2)  $p < 0.001$ ] indicated that insulin sensitivity was decreased in centrally-obese subjects. Median (IQR) of fasting serum insulin level [19.3 (15.3-28.5) vs. 9.8 (6.5-13.5)  $\mu$ U/ml,  $p < 0.001$ ] and HOMA  $\beta$ -cell function [274.5 (192.9-467.0) vs. 167.6 (92.7-239.8),  $p < 0.001$ ] were significantly higher in centrally-obese subjects than that of non-obese subjects, indicating compensatory increased  $\beta$ -cell functions in centrally-obese subjects. Serum betatrophin level in centrally-obese group was significantly lower than that of non-obese group [2.4 (0.8-4.2) vs. 0.8 (0.4-2.4) ng/ml,  $p < 0.05$ ]. There was no significant correlation between serum betatrophin level and HOMA-IR (Spearman's  $\rho = -0.136$ ,  $p = 0.269$ ) as well as HOMA  $\beta$ -cell function (Spearman's  $\rho = 0.036$ ,  $p = 0.771$ ) in both groups.

### Conclusion

Betatrophin could not improve beta-cell function and might not involve in compensatory mechanism of insulin resistance in central obesity.