Proinsulin/Insulin Ratio as a Predictor of Insulin Resistance and B-Cell Dysfunction in Obese Egyptians ((Insulin Resistance & B-Cell Dysfunction in Obese Egyptians))

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Abstract

Insulin resistance (IR) and β-cell dysfunction are key pathological features of type 2 diabetes mellitus, **the aim of this study** was to investigate the role of proinsulin level and proinsulin/insulin ratio in early prediction of beta cell dysfunction and insulin resistance in obese Egyptian adolescent.

Patients and methods

This Case control study was conducted from June 2017 to March 2018. Total of 60 patients were divided into 2 groups after exclusion of patients with diabetes: normal body weight group and Obese group. Demographic, clinical data were collected. Laboratory investigation included fasting insulin, proinsulin, and estimation of HOMA IR and HOMA-B were done.

Results

There are highly statistically significant increase in obese group regarding insulin, proinsulin, proinsulin/insulin ratio and HOMA-IR while there is significant decrease in HOMA-B in this group. The best cutoff value of Proinsulin in prediction of beta cell function was ≥7.829 pmol/L with sensitivity 95.8, specificity 72.2. The best cutoff value of Proinsulin/insulin ratio in prediction of insulin resistance was ≥0.1545 with sensitivity 87.5, specificity 61.1.

Conclusion

both beta cell dysfunction and insulin resistance increased in obese group and so increased risk of type 2 diabetes. We found that Pro insulin/insulin ratio is a significant predictor for insulin resistance and Proinsulin is good predictor for beta cell dysfunction.

Keywords: Pro insulin /insulin ratio; Insulin resistance; Beta cell dysfunction; Obesity