Comparison of Methods Used to Detect Insulin Resistance in Overweight and Obese Children

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Methods
Children, aged 9-12 years-old, were recruited to participate in a family-based community diabetes prevention trial. Inclusion criteria were body mass index (BMI) ≥85th percentile for age and sex, and ≥1 T2D risk factor (e.g., family history of T2D, ethnic minority, etc.). Baseline fasting blood glucose, insulin, triglycerides, and HDL-c were collected from 28 participants and used for the analysis. Using a calculated Homeostasis Model Assessment (HOMA)-IR with a cut off value ≥2.5, ROC curves analysis showed the greatest sensitivity and specificity for fasting insulin with area under the curve of 0.989 (95% Confidence Interval 0.956, 1.000).

Conclusions
Multiple studies in adults and children have identified HOMA-IR as the best non-invasive method of identifying IR. The downfall in using HOMA-IR in the clinical setting is the additional time in calculating the value plus the additional glucose testing. Fasting insulin with cut off point of 12 µU/mL maybe a good alternative option to identify IR and is superior to fasting glucose and Triglyceride/HDL ratio. Further, the traditional fasting glucose value of ≥100 mg/dL misses many children with IR. The limitations of the study are that it is small and targeting Hispanic overweight youth 9-12 which limits the generalizability of our results.

References

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