TITLE: TRIPONDERAL MASS INDEX AS A SCREENING TOOL FOR DETECTING INSULIN RESISTANCE IN CHILDREN AND ADOLESCENTS: A META-ANALYSIS

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BACKGROUND: A growing health issue, obesity is strongly linked to comorbidities such as insulin resistance (IR), dyslipidemia, hypertension. A state of reduced insulin sensitivity, insulin resistance is prevalent at 3%-44% in the pediatric population. Anthropometric measurements like Body mass index (BMI) can estimate body fat thus becomes a useful tool in predicting risk for insulin resistance. However, some studies doubted its capability hence the search for a better tool. Triponderal mass index (TMI) is a promising new anthropometric to forecast risk for IR.

OBJECTIVES: Determine accuracy of TMI as a screening tool in predicting risk for IR compared to BMI

SEARCH METHODS: Literature search thru Pubmed, Science Direct and Google Scholar

SELECTION CRITERIA: Subjects 5-18 years old having TMI and BMI measurements, sufficient data that reported on the diagnostic accuracy of the anthropometric measurements such as sensitivity, specificity, area under the curve (AUC), receiver operator characteristic analysis and those that have methods of measuring insulin resistance such as Homeostatic Model for Assessment for Insulin Resistance (HOMA IR) were included.

DATA COLLECTION: The reviewers performed the search, assessment and extraction of data. Primary bivariate regression framework for primary data synthesis was used.

MAIN RESULTS: Four studies were included with 6254 subjects. TMI had a pooled sensitivity of 66% and specificity 74% while BMI had 71% for sensitivity and 64% specificity. Both showed acceptable accuracy with AUC score of 0.75 for TMI and 0.73 for BMI.

CONCLUSION: Both TMI and BMI exhibited similar range of values for sensitivity, specificity and AUC. Results underscored the awareness of the paucity of studies which created variances. Triponderal mass index presents a potential instrument for screening of insulin resistance in children and adolescents in the near future.

KEYWORDS: *triponderal mass index, insulin resistance, cardiometabolic risk, children, adolescents*