COMPARING EFFECTIVENESS OF THE THREE NOVEL LIPID INDICES IN PREDICTING METABOLIC SYNDROME IN YOUNG BANGLADESHI ADULTS: A CROSS-SECTIONAL STUDY

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Background : Metabolic Syndrome is directly linked with the development of Type 2 DM, cardiovascular diseases and stroke. Due to ethnic predisposition of the people of this region, Bangladesh is currently facing "metabolic syndrome" as a major public health challenge, with huge economic and social burdens. A number of studies in the recent years have reported three newer lipid indices, namely, LAP (Lipid Accumulation Product), TyG (Triglyceride-Glucose) index and VAI (Visceral Adiposity Index), as better performers than conventional markers, in predicting metabolic syndrome. These are gender-specific mathematical formulae, comprising anthropometric and biochemical parameters. The aim of the study is to establish the diagnostic cut-off values of the novel lipid indices and compare their effectiveness with one another in detecting metabolic syndrome in young Bangladeshi adults. **Methods:** 200 adults from 19 to 45 years of age and meeting all the inclusion criteria, were recruited for this cross-sectional study. Anthropometric measurements & blood pressure of the study subjects were recorded in preformed data sheets. Then their fasting blood glucose, serum Triglyceride & serum HDL-C concentrations were estimated. Study subjects were then classified into two groups, having metabolic syndrome or not, depending on the "National Cholesterol Education Program Adult Treatment Panel III (NCEP ATP III)" criteria. **Results:** Sensitivity, Specificity, Positive Predictive value and Negative Predictive value of LAP as diagnostic marker were 90.91%, 75.00%, 74.07% and 91.30% respectively; Sensitivity, Specificity, Positive Predictive value and Negative Predictive value of TyG index as diagnostic marker were 95.45%, 79.46%, 78.50% and 95.70% respectively; Sensitivity, Specificity, Positive Predictive value and Negative Predictive value of VVI as diagnostic marker were 92.05%, 75.00%, 74.31% and 92.31% respectively. Prevalence of metabolic syndrome among the study subjects was 42.00%, according to the NCEP ATP III criteria. 54.00% of the total study subjects had metabolic syndrome based on the optimal cut-off value of LAP; 53.50% of the total study subjects had metabolic syndrome based on the optimal cut-off value of TyG index; 54.50% of the study subjects had metabolic syndrome based on the optimal cut-off value of VAI. **Conclusion:** LAP, TyG index and VAI, all showed to be effective predictors of metabolic syndrome, with VAI showing slightly stronger predictive power than LAP and TyG index in case of young Bangladeshi adults.

Keywords: Novel Lipid Indices, Metabolic Syndrome, young Bangladeshi Adults