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## Apelin: A novel predictor of obesity-related complications in children

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**Background & Aim:** The rapidly increasing prevalence of childhood obesity has become a major burden on health worldwide, giving an alarm to healthcare clinicians and researchers. Adipocytes act as an active endocrine organ by releasing a plenty of bioactive mediators (adipokines) that play a vital role in regulating metabolic processes. Apelin is a newly discovered adipokine that is expressed in adipocytes. The present work aimed to study the association between serum apelin and childhood obesity and its related complications as hypertension and hyperglycemia.

**Method:** 50 obese and 45 non-obese age-and sex-matched children were enrolled in our study with mean age of ( $9.5 \pm 2.1$ ) and ( $8.7 \pm 1.3$ ) respectively. Anthropometric measurements, blood pressure were assessed in all studied participants, we also determined the lipid profile, serum insulin, fasting blood glucose (FBG) level, HOMA-IR and serum apelin.

**Results:** Obese children had higher levels of FBG, HbA1c, serum insulin, HOMA-IR, triglycerides, total cholesterol and low-density lipoprotein (LDL) and diastolic blood pressure (DBP Z-score); compared to controls (all  $p < 0.05$ ). Apelin was significantly higher in obese children versus controls and correlated positively with BMI Z-Score ( $p = 0.008$ ), DBP Z-Score ( $P = 0.02$ ), cholesterol, TG (both  $p = 0.02$ ), serum insulin ( $p = 0.003$ ), FBG and HOMA-IR (both  $p = 0.001$ ). Linear regression analysis showed that FBG was the most effective factor predicting the level of serum apelin ( $p = 0.04$ ).

**Conclusion:** This work supports the hypothesis that apelin may have a pivotal role in the pathogenesis of obesity-related complications in children including hypertension and insulin resistance and a higher risk of occurrence of metabolic syndrome.

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