



TG/HDL-C Ratio Independent of Obesity Associates with Airflow Obstruction in Children with Asthma

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To the Editor: The prevalence of dyslipidemia in children has increased in recent years due to the global epidemic of childhood obesity. There is recently conflicting evidence on the association between dyslipidemia and asthma [1, 2]. A recent cross-sectional study in Korean adolescents has shown a greater prevalence of asthma in children who had a high TG/HDL-C ratio [3]. However, no previous study evaluated the association of non-HDL-C and TG/HDL-C ratio in asthmatic children's degree of airflow limitation before. We have performed a cross-sectional study measuring blood lipid profiles, including triglyceride (TG), total cholesterol (TC), HDL-C, LDL-C, non-HDL-C, TG/HDL-C, and LDL-C/HDL-C and evaluating spirometry parameters in 150 children with asthma, aged 5–18 y. Interestingly, approximately half of our enrolled children with asthma had dyslipidemia, but only 20% of dyslipidemia children were obese according to WHO criteria. Children having asthma with airflow obstruction (% FEV₁/FVC ratio < 90) had significantly higher TG, TG/HDL-C ratio, LDL-C/HDL-C ratio, but lower HDL-C. After adjusting with other blood lipids, body weight, BMI z score, and obesity status, multiple logistic regression model demonstrated that only TG/HDL-C ratio was associated with % FEV₁/FVC ratio < 90, OR 2.78; 95% CI 1.5–5.15, $p = 0.001$. This result would suggest that the TG/HDL-C ratio, irrespective of obesity, seems to associate with having airflow obstruction in children with asthma. High TG and low HDL-C may have a role in systemic inflammation in asthma patients [4]. As a result, children with a high TG/HDL-C ratio may have chronic inflammation resulting in more airflow obstruction, as demonstrated in lower FEV₁/FVC. Intervention to lower

TG and increase HDL-C may lessen the systemic inflammation and result in improved lung functions. However, further controlled study with more sample size is needed to strengthen our findings.

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Declarations

Consent for Publication Written informed consent was obtained from all participants and their parents and written informed assent was obtained from children aged seven years or older.

Conflict of Interest None.

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