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Effect of N-3 polyunsaturated fatty acids on adipokines and biomarkers of endothelial dysfunction in obese asthmatic adolescents with hypertriglyceridemia

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Background: Obesity and asthma prevalence have been increasing over the past decade. Epidemiological evidence demonstrates that obesity results in an increased risk of developing incident asthma. Recently published data suggest that obese asthmatic patients may represent a distinct phenotype of asthma. Evidences demonstrate that deficiency in omega-3 fatty acids could promote both obesity and excessive inflammation, resulting in greater asthma severity.

Objective: To evaluate the effect of supplemental omega-3 fatty acid daily (2.0 g eicosapentaenoic acid (EPA) and 1.0 g docosahexaenoic acid (DHA)) for 12 weeks on adipokines and biomarkers of endothelial dysfunction in obese asthmatic adolescents with hypertriglyceridemia.

Methods: The study was controlled, 12-week parallel group intervention trial involving 86 obese asthmatic adolescents with hypertriglyceridemia (the level of triglyceride is higher than 150 mg/dl) randomized to either omega-3 fatty acid treatment (n=45) or placebo (n=41). Fasting glucose, insulin, lipid profile, leptin, adiponectin, selectin E (sE) and asymmetrical dimethylarginine (ADMA) were measured at baseline and endpoint.

Results: Compared with placebo, the supplement of omega-3 for 12 weeks reduced weight, triglycerides, sE and ADMA in obese asthmatic adolescents with hypertriglyceridemia. Also, omega-3 fatty acid demonstrated tendency to improve insulin resistance and decrease leptin. However, no changes were observed in glucose and adiponectin after treatment.

Conclusion: These results suggest that supplement treatment with omega-3 may be useful as an adjuvant therapy in obese asthmatic adolescents with hypertriglyceridemia.

Biography

Fengyang Huang has completed her PhD at the age of 28 years from Beijing University of Traditional Chinese Medicine and postdoctoral studies from Centro de Investigación y de Estudios Avanzados del Instituto Politécnico Nacional in Mexico. She is the leader of Laboratory of Pharmacology and Toxicology in Hospital Infantil de México Federico Gómez. She has published more than 20 papers in reputed journals. Her current research interests include the mechanisms between pediatric obesity and related complications, metabolic programming as well as relationship between obesity and asthma.

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