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Benefits of omega-3 fatty acids supplementation in pediatric patients on regular hemodialysis

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Background: Cardiovascular disease is the leading cause of death in patients with end stage renal disease on maintenance hemodialysis (HD). Omega-3 fatty acids are beneficial in preventing atherosclerosis and reducing the cardiovascular events. Patients undergoing HD are susceptible to inadequate omega-3 intake due to renal dietary restrictions. This study evaluates the effects of omega-3 on serum lipid profile, oxidative stress and cardiovascular manifestations in children undergoing HD.

Methods: A single blinded randomized placebo-controlled trial including 49 pediatric patients (mean age=14.6 years) on regular HD, who were randomly assigned into omega-3 group (n=25) who received 1 g oral omega-3 capsule once daily for 16 weeks or placebo group (n=24) who received 1 g matching oral placebo capsule once daily for 16 weeks. Total cholesterol (TC), triglycerides, high-density lipoprotein cholesterol, low-density lipoprotein cholesterol, malondialdehyde, glutathione peroxidase (GP) and superoxide dismutase (SOD) were measured at baseline and after 16 weeks of supplementation. Cardiovascular manifestations (chest pain, shortness of breath, palpitations, and feeling of fainting or dizziness) were also examined at baseline and at the end of the study.

Results: By the end of the study, children in omega-3 group showed a highly significant reduction ($p<0.001$) in TC and a highly significant increase ($p<0.001$) in GP and SOD. There was also a highly significant reduction in the number of children suffering from palpitations and chest pain in omega-3 group.

Conclusion: Omega-3 has a highly beneficial effect on serum lipid profile, oxidative stress and clinical manifestations of cardiovascular complications in pediatric patients on regular HD.

Biography

Areej Mohamed Ateya has completed her study at the Faculty of Pharmacy, Ain Shams University, Cairo, Egypt in 2013. She got her Pre-Master's and started working as a Teaching Assistant at the Clinical Pharmacy Department of the same university in 2014. She had attended multiple conferences in different clinical pharmacy disciplines and was a guest speaker in one.

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