

The short-term effects of ketogenic diet on carotid intima media thickness and elastic properties of the carotid artery and the aorta in epileptic children

*Doksöz Ö. (1), Güzel O. (2), Yılmaz Ü. (2), İşgüder R. (3), Çeleğen K. (4), Meşe T. (1)
Izmir Dr. Behcet Uz Children's Hospital, Department of Pediatric Cardiology, Izmir/Turkey (1); Izmir Dr. Behcet Uz Children's Hospital, Department of Pediatric Neurology, Izmir/Turkey (2); Izmir Dr. Behcet Uz Children's Hospital, Department of Pediatric Intensive Care Unit, Izmir/Turkey (3); Izmir Dr. Behcet Uz Children's Hospital, Department of Pediatric's, Izmir/Turkey (4)*

Objective: Currently no data are available for the effects of ketogenic diet on the development of atherosclerosis and/or cardiovascular disease. The aim of this prospective study is to investigate the effect of a 6-month-long ketogenic diet on carotid intima-media thickness, carotid artery, and aortic vascular functions. Methods: Twenty-three drug resistant epileptic patients who were treated with ketogenic diet at the pediatric neurology clinic were enrolled in this prospective study. Fasting total cholesterol, high-density lipoprotein (HDL), low-density lipoprotein (LDL), triglycerides, total cholesterol and glucose concentrations were measured and echocardiography was performed in all patients before the beginning of ketogenic diet and after the sixth month of treatment. Carotid intima-media thickness and aortic/carotid diameter at systole and diastole were measured after conventional echocardiographic examination. Results: The body weight, height, serum levels of triglyceride, total cholesterol and LDL increased significantly at month 6 when compared to baseline values. Systolic and diastolic diameters of the carotid artery and systolic diameter of aorta increased significantly at month 6 when compared to baseline measures ($p<0.05$). Carotid intima media thickness, elastic properties of the aorta and carotid artery did not change at the sixth months of therapy compared to baseline values. Conclusions: A six-month long ketogenic diet has no effect on carotid intima-media thickness and elastic properties of the carotid artery and the aorta. Further studies with larger samples and longer follow-up periods are needed to clarify the effects of ketogenic diet on carotid intima-media thickness and elastic properties of the carotid artery and the aorta.