8.SUMMARY

AORTIC STIFFNESS AND RELATED PARAMETERS IN OBESE CHILDREN

Objective: The purpose of this study is examined whether or not be different according to normal weight childrens of aortic wall stiffness and elasticity which early indicator of atherosclerosis on obese children and determined parameters related to aortic wall stiffness.

Methods: Sixty children who applied first time because of overweight and admitted egzojen obesity diagnosis and and sixty non-obese healthy children as control group were enrolled in the study Adnan Menderes University Medical Faculty Child Health and Diseases AD, Endocrinology and Adolescents BD clinic, too. Risk factors of obesity were questioned. Weight, height and blood pressure were measured and body mass index (BMI)'s were calculated. After twelve hours of fasting total cholesterol, HDL, LDL, triglycerides, fasting glucose, fasting insulin, TSH, FT_4, cortisol, homocysteine, TNF-α, leptin and adiponectin blood levels were taken. HOMA, Quick index and fasting glucose/fasting insulin ratio was calculated. Thickness of the walls of the heart chambers, systolic functions of heart and in case of systolic and diastol of abdominal aort by Echocardiography device were measured. Aortic wall stiffness and elasticity were calculated.

Results: The groups were similar in terms of age and sex. The mean weight and BMI in obese children was significantly higher in advanced. LVPWD, LVPWS, IVS_s, IVS_d, Ep^*, Ep values of obese children were significantly higher at an advanced level than the control group. For strain values between groups was not significant difference.

Total cholesterol, TG, LDL levels were significantly higher in the advanced level in the obese group who had high Ep^* value, HDL was significantly lower in the advanced level. It was obtained a model which demonstrated aortic stiffness is inversely proportional to the age between 5-15 years of age, directly proportional with LDL level. [Model: $E_p^* = 0,552 + (0,022 \times LDL) - (0,120 \times age)$]. Fasting insülin average values in obese group were significantly higher than the control group. For HOMA-IR index, insulin resistant index, QUICKI and $G_0/İ_0$ ratio between the obese

and control groups did not differ significantly advanced. Leptin, adiponectin and TNF-α levels in obese children were significantly higher than the control group. Homocysteine levels were not significantly different between both groups.

Positive correlation was determined obezite and to become short of breastfeeding duration (p=0,042), formula use (p<0,001), to be on of five of meals number (p<0,001), three times a week or more often prepared food to be taken (p<0,001), week three days of less frequent vegetable and fruit consumption (p<0,001), be the obesity that in parents or siblings (p<0,001), being service through of transport to school (p<0,001), the sedentary period spent at television or computer (p<0,001). In physical activity outside school (p<0,001) was associated in the inversely direction.

Conclusion: We consider that echocardiographic evaluation of arterial stiffness, to be non-invasiv, a safe method which especially can be used in children, could be used from childhood with the aims of screening and monitoring purpose of determining early atherosclerotic changes.

Key Words: Aortic stiffness, Aortic elasticity, Obesity, Abdominal aorta