Introduction

The “catch-up growth” phenomenon in children born small for gestational age (SGA) has been linked to early onset obesity with the subsequent emergence of metabolic syndrome (MeS). The intima media thickness of the common carotid artery (CIMT) is a well-known marker of subclinical atherosclerosis. Aim: to determine the association between being born SGA and CIMT, a measure of atherosclerosis and to investigate metabolic risk factors which impact on CIMT in obese children. Material and methods: A prospective study was carried out over a 1 year period (March 2013-March 2014). We analyzed 122 obese patients, 96 patients appropriate for gestational age (AGA) and 26 patients SGA. Both groups were matched for age, sex and BMI. Blood pressure, lipids and glucose were determined. Oral glucose tolerance tests (OGTT) were performed. Insulin resistance (IR) was assessed by homeostasis model assessment (HOMA). CIMT was measured in all the patients. Results: CIMT in obese children born SGA was significantly increased as compared with obese children born AGA similar age, sex and BMI (p<0.005). We demonstrated a strong correlation between CIMT and all other metabolic factors (r=0.88). In both groups, mean CIMT of was significantly related to diastolic blood pressure, triglycerides and HOMA. CIMT was not significantly related to systolic blood pressure and baseline glucose. Conclusion: High triglycerides levels and low HDL-cholesterol levels, IR and diastolic blood pressure, which are all components of MeS are strong predictors of increased CIMT in obese children. Being born SGA increases the atherogenic risk.

Results and Discussions

Aim

The aim of the study was to determine the association between being born SGA and CIMT, a measure of atherosclerosis. We also investigated metabolic risk factors which impact on CIMT in obese children. Material and methods: We performed a prospective study over a period of one year (March 2013-March 2014). We analyzed 122 obese patients, 96 patients appropriate for gestational age (AGA) and 26 patients SGA. Both groups were matched for age, sex and BMI. Blood pressure, lipids and glucose were determined. Oral glucose tolerance tests (OGTT) were performed. Insulin resistance (IR) was assessed by homeostasis model assessment (HOMA). CIMT was measured in all the patients. Results: CIMT in obese children born SGA was significantly increased as compared with obese children born AGA similar age, sex and BMI (p<0.005). We demonstrated a strong correlation between CIMT and all other metabolic factors (r=0.88). In both groups, mean CIMT of was significantly related to diastolic blood pressure, triglycerides and HOMA. CIMT was not significantly related to systolic blood pressure and baseline glucose. Conclusion: High triglycerides levels and low HDL-cholesterol levels, IR and diastolic blood pressure, which are all components of MeS are strong predictors of increased CIMT in obese children. Being born SGA increases the atherogenic risk.

Material and Methods

A prospective cross-sectional study was conducted over a period of 1 year: March 2013 and March 2014. Children were included if their age was above the age of 8 years. The subjects were divided into two groups: obese children born SGA and obese children born AGA. The study included 122 obese patients, 96 patients appropriate for gestational age (AGA) and 26 patients SGA. Both groups were matched for age, sex and BMI. Blood pressure, lipids and glucose were determined. Oral glucose tolerance tests (OGTT) were performed. Insulin resistance (IR) was assessed by homeostasis model assessment (HOMA). CIMT was measured in all the patients. Results: CIMT in obese children born SGA was significantly increased as compared with obese children born AGA similar age, sex and BMI (p<0.005). We demonstrated a strong correlation between CIMT and all other metabolic factors (r=0.88). In both groups, mean CIMT of was significantly related to diastolic blood pressure, triglycerides and HOMA. CIMT was not significantly related to systolic blood pressure and baseline glucose. Conclusion: High triglycerides levels and low HDL-cholesterol levels, IR and diastolic blood pressure, which are all components of MeS are strong predictors of increased CIMT in obese children. Being born SGA increases the atherogenic risk.

Discussion

1. High triglyceride levels and low HDL-cholesterol level. IR and blood pressure, which are all components of MeS are strong predictors of increased CIMT in obese children. Being born SGA increases the atherogenic risk.

2. Metabolic impairment in SGA children is amplified by weight gain and influenced by fatal programming; developing insulin resistance and developing atherosclerotic risk as a prenatal surviving mechanism is a risk factor for postnatal MeS.

3. IR is a significant determinant of mean CIMT level, which indicates that it is closely related to cardiovascular pathology.

4. CIMT in obese children born SGA was significantly increased as compared with obese children born AGA similar age, sex and BMI

5. Being born SGA is associated with an increase risk of atherogenicity.

6. Further population studies regarding reference values for CIMT in obese children born SGA and AGA are necessary.

Bibliography