THE DEGREE OF GLYCEMIC CONTROL IS ASSOCIATED WITH EXTENSIVE SUBCLINICAL ATHEROSCLEROSIS AND IMPAIRED SR-BI MEDIATED EFFLUX IN OBESE INDIVIDUALS

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Background: Increasing attention has focused on the factors that promote increased cardiovascular risk in obese individuals. The current study investigated HDL mediated cholesterol efflux and subclinical atherosclerosis in association with glycemic control in the setting of obesity.

Methods: 59 apparently healthy obese (BMI≥30) with (n=32) and without (n=27) dyslipidemia, and 17 normal weight volunteers underwent physical examination, fasting blood draw and carotid intima-media thickness (cIMT) measurements. Capacities of serum to promote cholesterol efflux with SR-BI and ABCA-1 receptors were examined.

Results: The characteristics of the entire cohort was, age 48±11 years, BMI 34±9, LDL-C 120±25mg/dL, HDL-C 50±12mg/dL, triglycerides 107(71, 146)mg/dL and HbA1c 5.5±0.5%. Dyslipidemic obese individuals demonstrated a greater cIMT and less SR-B1 mediated cholesterol efflux. ABCA1 mediated cholesterol efflux tended to be higher in dyslipidemic obese subjects. (figure) Significant correlations were observed between higher levels of HbA1c and thicker cIMT (r=0.43, p=0.0005) and less SR-B1 mediated cholesterol efflux (r=-0.42, p=0.0007).

Conclusion: In the apparently healthy obese population, elevated subclinical atherosclerosis and impaired SR-B1 cholesterol efflux capacities were observed in association with higher levels of glycated hemoglobin, which suggest the importance of glycemic control as a predictor of atherosclerosis and impaired HDL functionality in this cohort.