**ROLE OF EPICARDIAL ADIPOSE TISSUE IN ATHEROSCLEROSIS ASSOCIATED WITH OBESITY**

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**Objective:** The aims of the study were to look for any atherosclerosis in high-fructose high cholesterol diet pigs. Epicardial adipose tissue(EAT) was studied. The hormonal adipokines leptin and adiponectin levels were being measured in serum and EAT to compare. Free fatty acids are also measured and compared in serum and EAT.

**Method:** Yucatan swine were fed with high fructose high cholesterol(HFHC) diet to induce metabolic syndrome and atherosclerosis in them. Controls were normal swine fed with normal diet. These animals were sacrificed and studied. Their body mass index was calculated along with the basic metabolic profile. The serum and epicardial adipose tissue were studied. Free fatty acids of these animals were measured in the serum and in the EAT through ELISA. Leptin and adiponectin were also measured in the serum and from the EAT through ELISA. Histology of the left anterior descending artery with attached EAT is studied. All the measurements are compared to the serum vs EAT.

**Results:**All the Yucatan swine fed with HFHC diet were obese and had metabolic syndrome. These swine in their histology showed the presence of atherosclerosis along with enlarged spaces and higher amount of deposition of fat in the EAT. Free fatty acids (FFA) were significantly higher in the serum and EAT of HFHC swine compared to normal swine (FFA in serum N swine =1.05 mg/dl, HFHC =18 mg/dl) (FFA in EAT N swine: 40 mg/dl, HFHC=80.4 mg/dl). The FFA levels were exceptionally higher in the EAT compared to the serum of the HFHC swine. Mean Leptin levels were higher in HFHC swine but were not significant (leptin in serum N:12.1 ng/ml HFHC: 13.5 ng/ml) (Leptin in EAT N: 13.75 ng/ml, HFHC:14.78 ng/ml). Mean Adiponectin levels were lower in HFHC swine but were not significantly lower (Adiponectin in EAT N: 4.1 ng/ml HFHC: 2.76 ng/ml). The serum adiponectin levels (N: 1.8 ng/ml, HFHC: 3.2 ng/ml), were higher in the obese pigs.

**Conclusion:** The HFHC obese swine with metabolic syndrome showed diet-induced atherosclerosis and higher deposition of EAT. FFA of EAT is significantly higher than the serum levels in the obese swine. While the hormonal adipokines leptin and adiponectin do not show a significant change in their levels.