Correlation of serum Lecithin Cholesterol Acyltransferase (LCAT) levels with atherogenic risk indices in obese and non-obese groups in Yaounde - Cameroon

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Introduction: accruing evidence exist proving the negative correlation between cardiovascular risk and HDL levels. Given that high HDL levels reduce cardiovascular risk, evaluating the cardioprotective potential of a serum biomarker involved in HDL metabolism would be of interest. Lecithin Cholesterol Acyltransferase (LCAT) is an enzyme responsible for activating HDL. The main objective of our study was to evaluate the role of LCAT as a predictor of atherogenic cardiovascular risk in obese and non-obese people.

Methods: we conducted a comparative cross-sectional study recruiting 86 consenting subjects aged 21 years and above. Two equal study groups were defined as obese and non-obese. Obesity was defined as BMI $\geq$25kg/m^2. Data on demographics, physical exam, lipid profile (total cholesterol, triglycerides, HDLc, LDLc and) LCAT concentrations were collected.

Results: the atherogenic risk measured (TC/HDLc, LDL/HDLc and atherogenic plasma index (API) were significantly higher ($p = 0.007$; $p = 0.005$; $p = 0.009$ respectively) in obese patients compared to non-obese patients. Median LCAT concentration was significantly higher in the obese vs non-obese patients ($p < 0.001$). There was a significant negative correlation between the LCAT concentrations and the API measurement values in both groups. (Obese: Rho = - 0.470 and P=0.001, non-obese group: Rho = -0.335 and $p = 0.028$). However, there was no significant correlation between LCAT-CT/HDL [obese (Rho= -0.270; $p = 0.079$), non-obese (Rho = -0.224; $p = 0.150$)] and LCAT-LDL/HDLc [Obese (Rho = -0.202; $p = 0.195$) non-obese (Rho = -0.147; $p = 0.354$)].

Conclusion: obese people have higher atherogenic risk measures than non-obese people with a significant negative correlation between LCAT and API in both groups.

Keywords: LCAT, atherogenic index, Cameroon