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Serum paraoxonase and high density lipoprotein fractions: A view in diabetes

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Diabetes Mellitus (DM) has become a major cause of death worldwide. Significant alteration in lipid profile and antioxidant system occurs in response to DM. Paraoxonase (*PON*) is a family of three enzymes *PON*1, *PON*2 and *PON*3 associated with high density lipoprotein (HDL). The HDL in human plasma consists of two main sub-fractions HDL2C and HDL3C. We have decided to study the HDL subclasses and HDL associated enzyme paraoxonase with respect to diabetes. The study is aimed to know the effect of various factors on diabetes and their inter relation. The study has been conducted in a tertiary care referral hospital in India. A total of 80 subjects were included in the study. Lipid profile, *PON*1 arylesterase (ARE), *PON*1 lactonase (LACT) and HDL fractions were estimated. Regression analysis was applied. *PON*1 ARE, LACT and HDL fractions are found to be decreased among cases than in controls. *PON*1 ARE and LACT showed negative correlation with blood glucose levels and HDL 3C while positive correlation with HDL 2C. From the present study it is clear that reduced *PON*1 ARE and *PON*1 LACT activities are due to increased oxidative stress. *PON*1 as well as HDL fraction levels are subject to oxidative stress. Among the HDL fractions, HDL2C is the more variable fraction and reflects changes in HDL. This suggests that the protective role of total HDL against oxidative damage and complications is mainly mediated through HDL2C fraction.

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