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Sialic acid profile and sialidase activity in HIV infected individuals

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Sialic Acids and sialidases have been implicated in many disease states particularly bacterial and viral infections which are common opportunist infections of HIV disease. A study was carried out to determine sialic acid profile and sialidase activity in HIV infected and apparently healthy individuals. Blood samples were collected from 200 subjects (150 HIV infected individuals and 50 apparently healthy individuals, divided into four groups: HIV ART naive, HIV stable (on ART but have been stable with no clinical episodes), HIV-OI (on ART with opportunistic infections), and apparently healthy). Complete blood count, erythrocyte surface sialic acid (ESSA), free serum sialic acid (FSSA) concentrations and sialidase activity were determined for all 200 subjects. Analysis of variance was used to compare the results of the different groups of HIV infected individuals as well as controls. Anemia and neutropenia were the most common hematological abnormalities observed in this study with highest prevalence of anemia found in the ART naive group. There was significant difference ($p \leq 0.05$) between groups in FSSA level. The highest levels of FSSA were observed in the HIV ART naive (0.65±0.5 mg/ml). The mean ESSA value for the study population was 0.54±0.35 mg/ml with no significant difference ($p \leq 0.05$) between groups. No significant difference ($p \leq 0.05$) was found between groups and also in gender and age. The findings in this study of higher mean sialidase activity and FSSA levels in the ART naive HIV group compared with other groups indicate that the virus and other opportunistic pathogens may be sialidase producers in vivo which cleave off sialic acids from erythrocytes surface, leading to high levels of FSSA, anemia and neutropenia seen in this group. The higher ESSA concentration found in the HIV stable group along with lowest FSSA concentration in the group suggests the presence of sialyltransferases.

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To study allelic variants of *PON1* gene in ischemic stroke patients with high LDL/HDL ratios

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Stroke continues to be the leading cause of morbidity and mortality worldwide. Oxidative stress is a characteristic of ischemic stroke. Elevated LDL/HDL ratio is an important factor for predicting arteriosclerosis. Paraoxonase 1(*PON1*) protects LDL from oxidative modifications and has a protective effect against arteriosclerosis. Two common polymorphisms, *Q192R* and *L55M*, in *PON1* gene can affect PON1 levels and function. The aim of this study was to evaluate *Q192R* and *L55M* polymorphisms in ischemic stroke patients with high LDL/HDL ratios and to investigate ox-LDL levels as a marker of oxidative stress. The study included 100 patients of ischemic stroke admitted in ICU of Base Hospital, Army College of Medical Sciences, Delhi and 100 controls. Patients were in the age group of 55-85 years. *PON1 Q192R* and *L55M* were determined by PCR-RFLP method, ox-LDL by ELISA kit method. *PON1 L55M* was associated with high LDL/HDL ratios in ischemic stroke patients. So, the L55M polymorphism can contribute in decreasing the antioxidant function and decreasing HDL particles. Plasma levels of ox-LDL were increased in stroke patients ($P<0.001$) compared to controls. In conclusion, it is important to explore the effects of *PON1 L55M* genetic polymorphisms and the inflammatory response associated with stroke. We hypothesized that elevated ox-LDL levels and lower *PON1* activity may contribute for the development of oxidative stress. The present study was carried out to emphasize the importance of these markers for early diagnosis and therapeutic interventions in ischemic stroke patients.

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