P039

P039 -Assessment of Microalbuminuria and its Clinical and Biochemical Correlates in Individuals with Sickle Cell Gene.

Dr Ayoola Odeyemi[1], Prof Fatiu A Arogundade[2], Dr Lanre O Olatunde[3]
[1]General Hospital (Odan) Lagos Island, Lagos , Nigeria, [2]Obafemi Awolowo University Teaching Hospital, Ile-Ife, Nigeria, [3]Federal Medical Center, Owo, Nigeria

Sickle Cell Disease (SCD) is a major genetic disease noted to be prevalent in most countries in Sub-Saharan Africa. Patients with SCD may develop a glomerulopathy with proteinuria and progressive renal insufficiency, leading to end stage renal disease (ESRD) with consequent need for renal replacement therapy. Microalbuminuria (MA) has been shown to be an early predictor of nephropathy in SCD.
The aim of this study was to determine the prevalence of MA in sickle cell disease and trait and to also determine the clinical and biochemical correlates of MA in individuals with the sickle cell gene.
This cross-sectional study involved a total of 300 individuals with sickle cell disease, sickle cell trait and haemoglobin AA as controls diagnosed using haemoglobin electrophoresis. A structured pro-forma was administered and detailed physical examination performed. Blood and urine samples were obtained for analysis.Data was analysed on a personal computer using Statistical Package for Social Sciences (SPSS) software version 20.0. Normally distributed numeric variables were summarised using their mean and standard deviation (Mean± SD). Categorical variables are summarized and presented using frequency tables with proportions and charts as appropriate.The chi-square test was used for comparison of categorical variables while independent sample t- test was used to compare means. Binary logistic regression model was also used to determine further associations between continuous variables. In instances where mean values of parameters were compared by variables with three or more categories, the one way analysis of variance (ANOVA) was performed. A P-value of 0.05 was taken to be statistically significant.
All the 300 studied subjects completed the study. The mean ages for the three studied groups (SCD, SCT and control group) were 28.8(9.9) years, 29.0(8.6) years and 28.7(8.7) years respectively. Microalbuminuria was significantly higher in the SCD subjects compared to the SCT and control groups (61% vs 12% vs 8%, p<0.0001). The SCD subjects had median (interquartile range) UACR of 40(20.0-100.0) mg/g; this is higher compared to the SCT and control groups {17.6(10.0-26.3) mg/g and 16.7(10.0-24.0) mg/g respectively, p<.0001}. The comparison of demographic characteristics in SCD subjects with or without MA revealed that age was a distinguishing factor (p= 0.012). The mean eGFR of the SCD subjects {143.4(37.4) ml/min} was higher compared to the SCT group and controls {110.3(21.1) ml/min and 106.1(20.6) ml/min respectively (p<.0001)}. In SCD subjects with microalbuminuria, eGFR was found to be significantly lower (p=0.044). There was significant difference in reticulocyte index, serum albumin and aspartate aminotransferase (AST) values between SCD subjects with or without MA. Using binary logistic regression model, reticulocyte index, serum aspartate aminotransferase and serum albumin remained statistically significant. No association was found between MA and the clinical and laboratory indices in SCT subjects.
MA is very common in subjects with sickle cell disease in contrast to the other genotype groups and should be a routine method of detecting early onset of sickle cell nephropathy among SCD subjects.