OP-19: Heterozygosity of the glucose-6-phosphate dehydrogenase gene may offer protection against chronic kidney disease of unknown aetiology (CKDu): a case-control study done in a Sri Lankan population

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Introduction: Chronic kidney disease of unknown aetiology (CKDu) is an important health burden in Sri Lanka. Prevalence of CKDu has increased alarmingly during the recent past. Multiple causative factors appear to be involved in its aetiology. This study was done to determine any association between selected glucose-6-phosphate dehydrogenase **(**G6PD) gene variants and CKDu in the Sri Lankan population.

Methods: Samples were collected from CKDu patients attending the Teaching Hospitals of Kandy/Anuradhapura, using probability sampling methods. A total of 180 CKDu patients and 283 healthy controls were recruited (case:control for males 1:1; for females 1:3). Genotyping of 12 single nucleotide polymorphisms (SNPs) located in/near the G6PD gene was done commercially. Three SNPs were monomorphic and excluded from further analysis. The remaining nine SNPs were analysed separately for males and females, and the association of each SNP with the CKDu status was determined. Significant genotypes found among females were analysed further.

Results: The majority of CKDu cases were male (n=133; 73.9%) and over 40 years of age (n=147; 81.6%). None of the nine SNPs analysed were significantly different between cases and controls in males ($p>0.05$). However, in females, six of these SNPs (rs766420**,** rs2071429**,** rs2230037**,** rs4898389**,** rs5986877, rs7879049) significantly differed between CKDu cases and controls ($p<0.05$), with heterozygotes being significantly greater among the control group ($p<0.05$).

Conclusions: Males in older age groups were the most affected by CKDu. Six SNPs seemed to offer protection (either individually or collectively) to heterozygous females against CKDu in this population. Further studies with larger sample sizes are warranted to provide more robust information on the genetic effects of these SNPs on CKDu.

Keywords: CKDu, G6PD, genetics

Funding: Project funded by the National Research Council, Sri Lanka (Grant No: 14-069)