# The role of Kidney Injury Molecule-1, Interleukin-18 and Glutathione-S-Transferase-II in Paediatric HIVAN

**Louansha Nandlal**
University of KwaZulu-Natal, South Africa

HIV-associated nephropathy (HIVAN) in sub-Saharan Africa is a significant cause of morbidity and mortality in children. Early detection of kidney injury is essential to avert permanent damage and delay progression of kidney injury. Kidney biopsy is presently the gold standard for the diagnosis of focal segmental glomerulosclerosis (FSGS) however, it is invasive with attendant complications, and may not be representative due to sampling error. Also, serum creatinine is an insensitive and non-specific marker for the diagnosis of various kidney diseases, particularly in HIV-infected patients. Therefore, the need for a non-invasive approach using additional urinary biomarkers such as KIM-1, IL-18 and GST (π) for the early detection of FSGS, particularly in paediatric HIVAN, is urgently warranted. The study group comprised of 34 children; 13 with HIVAN and 21 with idiopathic FSGS. The control groups were 19 HIV positive and 16 HIV negative children with no kidney disease. Urine samples collected from these 69 children were stored at -80°C. Urinary concentrations of KIM-1, IL-18 and GST (π) were quantified using Pro RBM Kidney Toxicity Assay (Panel 1), a Bio-Plex® Multiplex Immunoassay system which utilizes Luminex xMAP technology using a bead-based flow cytometric platform dedicated to multiplex analysis. The data of each sample was collected and analysed using a BioPlex 200 instrument equipped with Bio-Plex Manager™ analysis software.

A significant increase in urinary KIM-1 levels were observed in the HIVAN group compared to the control groups viz., HIV positive (p=0.0039) and HIV negative (p=0.0438). There was no significant increase in KIM-1 levels between the idiopathic FSGS group and the control group (p= 0.0737and p=0.1757) respectively. No statistical significant differences were noted in urinary IL-18 and GST-π levels across all study groups. Urinary KIM-1 levels are significantly elevated in children with HIVAN and may be a useful biomarker to detect kidney disease in HIV-1 infected children.

loun0406@gmail.com

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