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## **Elevated Urinary KIM-1 Levels May be an Early Indication of Renal Injury among School Children in Regions with High Prevalence of CKDu in Sri Lanka.**

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### **ABSTRACT**

Paediatric renal injury is an emergent health concern, particularly in the regions with high burden of Chronic Kidney Disease of uncertain etiology (CKDu) in global hotspots. Kidney injury molecule (KIM-1) appears more sensitive and specific particularly at early diagnosis of renal injury. Hence, the aim of the present study was to assess the utility of KIM-1 in diagnosing renal injury against the conventional marker, albumin creatinine ratio (ACR). We conducted a cross sectional study with 200 school children (boys: 92, girls: 108; 12-16 years of age) from CKDu endemic regions in North Central Province and 154 children (boys:67, girls: 83) from regions where CKDu is not evident in Moneragala District. First void, non-fasting early morning urine samples were collected from the children and the samples were analysed for creatinine, albumin and KIM-1. The median (IQR) ACR values of boys, 2.81 (1.65-4.79) and girls, 2.68 (1.94-4.17) mg/g in CKDu endemic areas showed no significant difference ( $p>0.05$ ) compared to the ACR values of boys 2.09 (1.40-3.22) and girls, 3.09 (1.93-4.77) in CKDu non-prevalent areas. However, median (IQR) urinary KIM-1 level of boys 0.16 (0.06-0.28) ng/mgCr in CKDu affected areas was significantly higher ( $p=0.0012$ ) than the median KIM-1 level of boys 0.09 (0.001-0.21) ng/mgCr in CKDu non-affected areas. Further, Similarly Significantly increased ( $p<0.0001$ ) KIM-1 level was observed in girls 0.29 (0.14-0.49) ng/mgCr in CKDu affected regions compared to the girls 0.05 (0.001-0.15) ng/mgCr in CKDu non-endemic areas. Urinary ACR of children was very low and indicated no albuminuria. However, significantly high levels of urinary KIM-1 in children in CKDu affected regions, may indicate abnormal renal function in the absence of albuminuria, rendering high sensitivity over ACR. Our study provides evidence on potentially high risk of developing renal injury, for the children in CKDu prevalent areas and we recommend further interventions on this concern.

**Keywords:** *Children, Chronic Kidney Disease, KIM-1, Renal injury, Rural Sri Lanka.*