# DIAGNOSTIC PROFILES OF NOVEL URINARY BIOMARKERS IN PROPANIL-INDUCED NEPHROTOXICITY IN LIMITED RESOURCE HOSPITAL

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**Objectives:** Self-poisoning with herbicide propanil has a mortality of up to 12%. Propanil–induced methaemoglobinaemia is the primary mechanism of toxicity. Acute kidney injury (AKI) following propanil has been reported but only in small case series. The objective of this study is to describe propanil-induced nephrotoxicity using both conventional and novel biomarkers of AKI.

**Methods:** As part of an on-going multi-centre prospective cohort study on self-poisoning, serial blood and urine samples were collected from consenting patients at 8, 16 and 24 hours post ingestion and then daily until discharge. Novel urinary biomarkers were quantified using enzyme-linked immunosorbent assay and bioplex and serum creatinine (sCr) and cystatin C were measured by automated analyser. The performance of each novel biomarker to diagnose AKI (using Acute Kidney Injury Network (AKIN) definitions) was compared to sCr at 8, 16 and 24 h (using area under the receiver operating characteristic curve (AUC-ROC)).

**Results:** Fifty four consenting patients with propanil poisoning were admitted to the study hospital between October 2010 and May 2015. The sCr over the first few days showed 14 developed AKI (AKIN3, n=0, AKIN2,n=4 and AKIN1, n=10). Most novel biomarker results were similar for the NoAKI and AKIN1, but some increased in AKIN 2 group. Serum Creatinine and Cystatin C at 8 hour had a AUC-ROC of 0.66 (95% CI: 0.4 to 0.9) and 0.75 (95% CI: 0.5 to 0.9) respectively. Urinary biomarkers, trefoil factor 3 and β2microglobulin increased at 16 hour in patients who developed AKIN2 but only showed a moderate diagnostic performance. Biomarkers of ischemic-reperfusion injury such as urinary IL-18 also did not change in any AKI group.

**Conclusions:** Propanil-induced nephrotoxicity is mild and reversible and can be diagnosed using sCr within 16 hours of poisoning. Novel biomarkers did not add value to sCr, and were not useful in diagnosing AKI early in propanil nephrotoxicity.