≈ ORAL PRESENTATIONS ≈

OP 021

Identification of Acute Kidney Injury and Associated Renal Biomarker Profiles Due To Glory Lily (Gloriosa Superba) Intoxication

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Abstract

Objective: Glory Lily (*Gloriosa superba)* is a poisonous plant which contains colchicine and when taken in self-poisoning in Sri Lanka, has a case fatality of around 23%. Severe cases develop acute kidney injury (AKI), perhaps due to reduction in renal tubular cell proliferation.This study aims to study further the AKI caused by Glory Lily poisoning using conventional and novel renal biomarkers.

Methods: 51 Glory Lily intoxicated patients (Male/Female: 27/24) were recruited to the study. Serial urine and blood samples were collected at 8, 16, 24, and 48 hours and 1 and 3 months post-ingestion. Serum creatinine was measured using the jaffe reaction. Concentrations of serum cystatin C and urinary biomarkers (kidney injury molecule-1 (KIM-1), clusterin, albumin, beta-2-microglobulin (β2M), cystatin C, neutrophil gelatinase-associated lipocalin (NGAL), osteopontin (OPN), trefoil factor 3 (TFF 3)) were quantified using enzyme-linked immunosorbent assays (ELISA). AKI grade (1-3) was determined according to the Acute Kidney Injury Network (AKIN) criteria. The time point where each biomarker reached its maximum level (T-max) within 48 hours was recorded. Total area under the biomarker concentration – time curve (AUC_b) was calculated as per the trapezoidal rule for within 48 hours of intoxication. Receiver operating characteristic (ROC) curves and correlations were performed to evaluate biomarker performance.

Results: 13 patients developed AKI but this was generally not severe (AKIN1 (9), AKIN2 (1), AKIN3 (3)). 1 patient with AKIN3 died. KIM-1, clusterin, albumin, β2M, NGAL OPN and TFF 3

had a Tmax at 16 hours post-ingestion. Tmax at 24 hours intoxication was observed for serum creatinine and serum cystatin C. Serum cystatin C, KIM-1, albumin, OPN and TFF3 had areas under ROC curve (AUC-ROCs) of 0.75 (95% CI: 0.56 – 0.93), 0.89 (95% CI: 0.71 – 1.00), 0.76 (95% CI: 0.57 – 0.95), 0.83 (95% CI: 0.67 – 0.98), and 0.86 (95% CI: 0.73 – 0.99) respectively. Positive correlations were observed in biomarkers pairs: serum creatinine - serum cystatin C (r = 0.85, p - 0.0001), albumin - urinary cystatin C (r = 0.84, p = 0.0001), β2M – urinary cystatin C (r = 0.81, p - 0.0001) and OPN – TFF 3 (r = 0.81, p = 0.0001).

Conclusions: Glory Lily intoxication generally caused minor AKI in this series. Serum cystatin C, KIM-1, albumin, OPN and TFF 3 were the best of the new biomarkers at predicting later development of AKI. Further studies should focus on the utility of urinary biomarkers to predict more serious consequences of colchicine toxicity (e.g. organ failure,death).