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Association between high levels of serum creatinine and development of heart blocks in acute yellow oleander (*Thevetia peruviana*) poisoning patients within the first 24 hours

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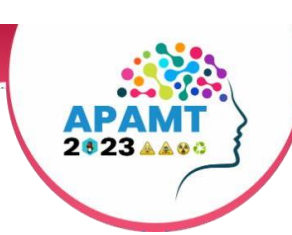
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Aims and Objectives:

All parts of the yellow oleander (*Thevetia peruviana*) plant contain a large number of cardiac glycosides. Although some animal studies have revealed pathological changes in kidneys following acute yellow oleander poisoning, the effect on human kidneys is not clear. It is important to elucidate the association between serum creatinine (SCr) level and development of heart blocks in acute yellow oleander poisoning patients within the first 24 hours of admission.

Methodology: A prospective descriptive cohort study was carried out at Teaching Hospital Batticaloa, Sri Lanka, from 1st July 2022 to 31st July 2023 among patients admitted following acute yellow oleander poisoning. The inclusion criteria were presence of any of the following signs: bradycardia (<60 bpm), systolic blood pressure <80mmHg nausea, vomiting, abdominal pain, diarrhoea, xanthopsia. Patients were recruited within 2 hours of admission. SCr level was assessed at recruitment and every 6 hours, serial electrocardiograms were done at recruitment and every 4 hours, for 1st 24 hours following admission. Chi-Squared test was performed to find the association between high SCr level and development heart blocks. Ethical clearance was granted by the Ethics Review Committee of the Faculty of Medical Sciences, University of Sri Jayewardenepura, Sri Lanka.

Results: Of the 200 consenting symptomatic patients recruited, 12.0%(n=24) patients had high SCr levels (>1.35mg/dL). 6.0%(n=12), 8.0%(n=16) and 4.0%(n=8) patients developed 1st, 2nd and 3rd degree heart blocks respectively. Temporary cardiac pacing (TCP) was done in 8.0%(n=16) patients and 1.5%(n=3) died due to cardiac arrest. Incident of patients with normal SCr levels who developed heart blocks was 15.34% while incident of patients with high SCr levels who developed heart blocks was 37.5%. There is a significant



association between high SCr levels and development of heart blocks in acute yellow oleander poisoning patients within 24 hours of admission ($\chi^2(1, N=200) = 5.605, p=0.0179$). In patients who were found to have high SCr, the relative risk of development of heart blocks was 2.44 ($P = 0.0049$)

Conclusion: Monitoring SCr levels during first 24 hours of acute yellow oleander poisoning is important to identify patients who are at risk of developing heart blocks.