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## Multidose Activated Charcoal Versus Single-Dose Activated Charcoal in Yellow Oleander Poisoning: A Systematic Review and Meta-Analysis

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**Aim and objectives:** We conducted a systematic review and meta-analysis (SRMA) to evaluate the efficacy and safety of multi-dose activated charcoal (MDAC) over single-dose activated charcoal (SDAC) in patients with yellow oleander poisoning.

**Methodology:** Following PROSPERO registration, an extensive search was conducted across various databases, namely PubMed, ScienceDirect, Embase, Scopus, Web of Science, Cochrane Central Register of Controlled Trials (CENTRAL), ClinicalTrials.gov, and WHO International Clinical Trials Registry Platform (ICTRP). A combination of medical subject headings (MeSH) and free text terms was utilised, encompassing phrases such as "activated Charcoal," "cardenolide," "oleander," "thevetia," and "nerium." The study included human research in English across all age groups, comparing MDAC and SDAC in yellow oleander poisoning. We included only randomised controlled trials, and the risk of bias assessment was done using the RoB 2 tool.

**Results:** The review contained two studies from Sri Lanka involving 1491 patients. Both were randomised controlled trials, out of which one was single-blinded. Using the random-effects model, patients with yellow oleander poisoning treated with MDAC had no mortality benefit compared to those treated with SDAC (RR, 1.03, 95% CI 0.98 - 1.08). In one study, adverse effects of treatment with multiple doses of activated charcoal were diarrhoea and abdominal discomfort. Three patients had diarrhoea, and 13 complained of abdominal discomfort during treatment. These side effects were transient and resolved without any specific treatment. The other study did not report any adverse events. Risk of bias assessment revealed "some concerns" in both the randomised trials.

**Conclusions:** The substantial prevalence of yellow oleander poisoning in Southeast Asian Countries, coupled with limited access to treatment options like pacing, increases the need for better decontamination procedures. Even though the results of our SRMA suggest that Multi-dose Activated Charcoal has no significant



effect over single-dose activated Charcoal on mortality in these patients, these studies were done in Sri Lanka alone. Also, these findings are limited by the fact that there are only two RCTs in our review. Therefore, we strongly suggest further studies to assess the efficacy of multidose-activated charcoal in managing yellow oleander poisoning.