

Department with abdominal pain following ingestion of 10 g oxalic acid mixed with water. Caustic injury was initially ruled out with normal endoscopic findings. Acute kidney injury evidenced by acute oliguric renal failure ensued within 6 h. Patient underwent five sessions of hemodialysis and before renal function indices returned to normal and calcium oxalate in the urine was no longer evident. Other systemic manifestations noted were metabolic acidosis with elevated anion gap with persistent hypocalcemia and episodes of QT prolongation. Respiratory distress developed on the third day accompanied with signs of acute lung injury. Supportive management was given with hemodialysis to facilitate elimination of calcium oxalate. Supportive mechanical ventilation, hydration, and electrolyte correction were given. *N*-Acetylcysteine as nebulization to address lung injury and potassium citrate postulated to inhibit calcium oxalate supersaturation in the renal tubules were included in the treatment regimen to address organ-specific injury from oxalate. Patient was discharged after intensive care.

Discussion: Pathophysiologic findings following oxalic acid ingestion results from intraluminal crystal deposition with renal biopsy specimen showing the degeneration of the renal tubular epithelial cells associated with intracellular calcium oxalate crystal deposition resulting to acute renal failure. Deposition of the formed oxalate crystals may also occur in other organ systems. This explains the multiorgan failure exhibited in the course of the patient. **Lessons Learned:** Early identification of systemic complications of a caustic substance is imperative with adequate supportive management to avoid morbidity. It is recommended that oxalic acid ingestion be included in the continued toxicovigilance, and promotion of regulation controls on availability of toxic household chemicals be implemented.

(19) Adverse Drug Events in Hospitalized Patients with Acetaminophen Overdose Treated with Intravenous *N*-Acetylcysteine

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Objectives: Intravenous *N*-acetylcysteine (IV-NAC) is widely recognized as the antidote of choice for acetaminophen overdose. However, its use is not without adverse drug reactions (ADR) which might affect therapeutic outcome or lead to treatment delay. The aims of this study were to investigate the type and incidence of ADR induced by IV-

NAC in patients treated for acetaminophen overdose and to assess the causality of individual ADR to IV-NAC using Naranjo's algorithm.

Methods: This is a retrospective study of patients admitted to the hospital for acute acetaminophen overdose over a period of 5 years (January 1, 2004 to December 31, 2008). The primary outcome of interest in this study was the occurrence of ADR during NAC administration. The probability of an ADR was assessed using the Naranjo algorithm, which consists of ten questions, and has been used to determine the likelihood that an ADR was related to a specific medication. The Naranjo score takes into account other possible influences such as drugs or disease. The association scores were: ≥ 9 ="definite", 5 to 8="probable", 1 to 4="possible", and 0="doubtful".

Results: During the study period, 305 patients with a diagnosis of overdose of paracetamol-containing compounds were admitted to the hospital for monitoring and treatment. Different types of ADR occurred in 137 patients (137/305; 44.9 %). Of those patients who had an ADR, 98 (98/137; 71.5 %) had been treated with IV-NAC and 39 (39/137; 28.5 %) had not ($p < 0.001$). Comparison of different ADR in all patients showed that the following ADR were significantly associated with IV-NAC administration: nausea ($p = 0.004$), vomiting ($p < 0.001$), flushing ($p < 0.001$), rash ($p < 0.001$), pruritus ($p < 0.001$), chest pain ($p = 0.001$), bronchospasm ($p = 0.015$), coughing ($p = 0.017$), headache ($p < 0.001$), dizziness ($p < 0.001$), convulsion ($p = 0.035$), and hypotension ($p = 0.001$). Based on Naranjo's algorithm, 226 events were judged to be NAC related—31.1 % probably and 67.9 % possibly drug related. None of the events were definitely drug related.

Conclusions: Adverse drug reactions to IV-NAC were common among patients with acetaminophen overdose but mostly minor, and that all reported adverse reactions were easily managed.

(20) Follow-up Health and Environmental Assessment of Communities Exposed to Bunker Oil in Guimaras Province 15 Months After the Spill

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Introduction: In 2006, massive oil spill occurred in Guimaras province resulting to the release of chemicals into the environment, severely affecting 14 communities. Seven