IS – 15

Emergency Management of Amphetamine Toxicity

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Amphetamine or its methylendioxy analogues (MDMA) abuse is widespread in the Asia Pacific region and worldwide due to expansion of illegal drug market and the beliefe that the use of its for recreational purpose is safe. The dose ingested does not predict severe toxicity which is largely unpredictable and idiosyncratic. Some individuals can use the drug without immeditae harm whilst others taking similar amounts have experianced severe toxicity, including death. However their incidence is unclear, several scientific reports comfirmed a number of potentially fatal complication. Therefore, health care providers need to promptly recognize the symptoms of systemic toxicity in order to initiate early treatment.

Pre hospital management is primarily supportive, assess airway, breathing, circulation (administer oxygen, obtain intravenous access), perform frequent vital signs check, blood glucose level. Any patients with a core temperature greater than 105°(39.5°C), rapid cooling is applied as necessary. Anxiety, extreme agitation, panic reactions and seizures may require short acting benzodiazepines (e.g.Lorazepam). Restraints may be necessary if patients exhibit complete loss of control and are dangerous to themselves or others while en route to receiving fascility.

Emergency-type treatment in hospital is necessary to avoid the dose-dependent increase in adverse reactions and in severity of complications. Treatment of suspected amphetamine toxicity is initiated before receiving laboratory result. In the most severe cases, ICU care with multiorgan support, cardiac telemetry, mechanical ventilation and close one-on-one observation may be necessary. If a patient gives a clear history of MDMA ingestion with mild symptoms and is hemodynamically stabel, no laboratory studies are indicated. If the history is absent and/ or quesionable or if patients exhibits signs of moderate to severe toxicity, appropriate laboratory studies are indicated. There are no specific antidotes to be used during acute toxicity. Supportive measures and medical treatment centered on the underlying anomaly in acute settings should be implemented, including;

- Hypertermia (t≥ 39.5°C) must be treated aggressively. Rapid external cooling, paralysis, intubation and intravenous sedation. Assess for rhabdomyolysis (creatinine phosphokinase level, urinalysis) and electrolite problems, hydrate adequately.
- Hyponatremia. Assess total body water, fluid restrict if mild. Hypertonic saline if severe, with serial electrolyte serum monitoring.
- Serotonin Syndrome. Control muscle rigidity. Monitor temperature, respiration, fluid and electrolite status. Benzodiazepine first line therapy, initially with normal dose, followed by higher doses if ineffective.
- Cardio-vascular & Cerebro-vascular management. ECG (if chest pain, SOB, SaO2 dropping, hypertension, or tachycardia). Neuro-imaging/CT brain (if altered consciuos state, focal neurological signs, severe headache), electrolytes, glucose, renal function, add troponin if chest pain, avoid beta-blockers, sublingual nitroglycerine for chest pain in combination with benzodiazepines. Avoid aspirin if uncontrolled hypertension.

Discharge of non-admitted patients from the emergency department should only occur once physiological parameters and mental status have returned to normal.