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108. Extracorporeal Membrane Oxygenation for Severe Toxicologic Exposures: Review of the Toxicology Investigators Consortium (ToxIC)

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Background: NPDS reported 2.3 million human exposure calls to in 2011 with 2,765 reported deaths (1.1%). Although there have been many developments in treatments for severe exposures, one of the most aggressive supportive modalities is cardiopulmonary bypass, or extracorporeal membrane oxygenation (ECMO).

Aims: To describe use of ECMO for toxicologic exposures reported to the American College of Medical Toxicology (ACMT) Toxicology Investigators Consortium (ToxIC).

Methods: Retrospective review of the ACMT ToxIC registry from January 1, 2010 to December 31, 2013. Data collected included demographics, exposure, treatments, time to initiation, duration of ECMO, and survival.

Results: There were 26,271 exposures (60 % female) reported to the ToxIC Registry; 10 (0.0004 %) received ECMO including 4 pediatric (<6 years), 2 adolescent (6–18 years), and 4 adults (>19 years). Initiation of ECMO ranged from 4 h to 4 days into the hospital stay, with a duration from 15 h to 12 days. Exposures included: 4 polypharmacy, 3 chemical asphyxiants, 2 single drug ingestions, and 1 toxic alcohol. Medication classes included antihistamines (2), antipsychotic/antidepressant (2), cardiovascular drugs (2), analgesics (2), sedative/hypnotics (2) and antidiabetic (2). Most patients received other therapies including CRRT (5), bicarbonate (4), intralipid (2), and hemodialysis (1). Three ECMO patients received cardiopulmonary resuscitation during their hospital course. Survival rate was 80 %.

Discussion: Severe poisonings called to NPDS continues to increase, and poisoning has become the leading cause of injury death. In animal models and human case reports, ECMO has been showed to improve mortality from toxicity exposure to various xenobiotics. A previous case series reported similar survival rate (76 %). Unfortunately, ECMO requires a large amount of resources; few facilities have the capabilities or the ability to activate ECMO in a timely fashion, and it is associated with significant risks including stroke and infection.

Conclusion: ECMO was rarely used in poisoning cases seen by Medical Toxicologists and reported to the ToxIC registry. ECMO was utilized for all ages for pharmaceutical and non-pharmaceutical exposures. In most cases, ECMO was administered prior to cardiovascular

failure, and survival rate was high. ECMO may be useful, if available, for severe poisonings, when standard supportive care is failing.