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132. Utility of a Multicenter Clinical Surveillance System to Describe the Variability of N-Acetyl Cysteine Treatment in Single Agent Acetaminophen Poisonings*

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Background: Acetaminophen (APAP) remains a common agent in acute poisonings and a cause of pharmaceutical- induced liver toxicity. The antidote N-acetyl cysteine (NAC) serves as recommended therapy informed by medical his- tory, coingestants, extended-release formulations, serum APAP levels and/or timing of exposure to presentation.

Research Question: Can understanding the differences between APAP-poisoned patients receiving and not-receiving NAC within the Toxicology Investigators Consortium (ToxIC) registry help identify clinical variation in the treatment of such cases?

Methods: This cohort study consisted of prospectively collected data of single agent APAP poisoning reported to the ToxIC Core Registry January 1, 2019, to September 30, 2023. Participants record deidentified patient information from the electronic health record and evaluating medical toxicologist related to demographics, clinical presentation, and toxicologic treatment via REDCap. Starting in 2019, ToxIC requires indication of toxicity nomogram (Rumack-Matthew) and extended-release formulation in APAP cases. Data for this preliminary analysis include standardized fields related to antidote treatment, hepatic toxicity (AST or ALT >1000, or ALT 100-1000 IU/L), and vital status.

Results: Among 2495 cases of APAP-only exposure in ToxIC over this period, 7.3% reported an extended release modified formula. 90.9% of all cases received NAC treatment. No statistically significant differences appeared for NAC treatment by age category, sex, or race/ethnicity. A higher percentage of those with hepatotoxicity (97.9%) received NAC compared to those without hepatotoxicity (88.9%; $p < 0.001$). Reported mortality was higher among those treated (1.6%) versus not treated with NAC (1.3%; $p= 0.03$). Line crossers (Rumack-Matthew nomograms) com- prised 21.0% of all single APAP exposures, while 47.4% reported as non-line crossers. The remainder indicated no nomogram obtained (12.3%), no repeat APAP levels (1.6%), or status unknown/missing (17.6%).

Conclusion: ToxIC accrues a substantial set of APAP poisonings, additional fields to inform modeling single and poly-drug cases might include the timing and reasoning around nomogram utilization.