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From: Ron Kirschner, MD, Medical Director
To: ALL HEALTH CARE PROFESSIONALS
Subject: Timing of lab tests in acetaminophen overdose
Date: 7/17/18

- Acetaminophen (APAP) is the most common pharmaceutical overdose poison centers are called about.
- The acetaminophen nomogram currently used in the U.S. predicts the risk of developing hepatotoxicity, defined as ALT or AST >1000 U/L.
- The nomogram was designed for acute ingestions, where all of the drug was ingested within one hour. It should only be used for serum APAP levels obtained at least 4 and < 16 hours post-ingestion.
- Although early (1-2 hours post-ingestion) levels are often obtained, this information is not predictive enough to formulate treatment decisions, and ≥ 4 hour levels will still be required.
- If chronic misuse is suspected, it is appropriate to check an APAP level but not to use the nomogram.
- When the time of ingestion is unknown and APAP is detectable the patient is typically treated empirically with N-acetylcysteine (NAC). In some cases it may be possible to estimate ingestion time based on when the patient was last seen in his or her normal state by family.
- Similarly, in cases of staggered overdose ingested over several hours the nomogram cannot be applied, and the patient is generally treated with NAC if APAP is detectable.
- When a combination product with APAP and an opioid or antihistamine (or a sustained release APAP product) was ingested, we suggest that a 4 hour APAP below but close to the nomogram threshold be followed by a 7- 8 hour level. NAC is indicated if the 2nd level is above the treatment line.
- Another risk assessment tool sometimes used is the multiplication product (APAP level x ALT), which reflects drug level early and liver injury late, and does not require knowledge of ingestion time. A value of <1500 is predictive of low risk while >10,000 suggests high risk of hepatotoxicity.
- We encourage you to call so that we can discuss your patients and provide specific, individualized treatment recommendations.

Reference

Wong A. Risk prediction of hepatotoxicity in paracetamol poisoning. *Clinical Toxicology* 2017; 55: 879.

Our nurse and pharmacist certified specialists in poison information and physician toxicologists are available 24 hours a day to answer your questions.