From: Ron Kirschner, MD, Medical Director

To: ALL HEALTH CARE PROFESSIONALS

Subject: Acetaminophen overdose – treatment with high dose N-acetylcysteine

Date: 5/14/19

* Acetaminophen (APAP) is the most common pharmaceutical overdose poison centers are called about.
* The acetaminophen nomogram is useful when there is a single ingestion at a known time, but that only applies to about half of our APAP overdose patients. When ingestion time is known, the threshold for N-acetylcysteine (NAC) treatment is a serum APAP of 150 mcg/mL at 4 hours post-ingestion.
* In cases of uncertain timing, or repeated supratherapeutic ingestion (RSTI), we recommend empiric treatment with N-acetylcysteine (NAC).
* Following massive APAP ingestions, the standard dose of IV NAC may be insufficient.
* If the APAP is 300 mcg/mL following a single ingestion at a known time, we recommend doubling the NAC maintenance infusion (3rd bag) from 6.25 to 12.5 mg/kg/h (or 200 mg/kg over 16 h) – identical to the 2nd bag infusion rate.
* Since many cases do not have a clearly defined ingestion time, we recommend using this higher dose regimen for any patient with an APAP ≥ 300 regardless of timing.
* Once the APAP is <10, if continued NAC is still indicated because of worsening liver injury, it can then be administered at the standard 3rd bag rate of 6.25 mg/kg/h.

References

Chiew AL. Massive paracetamol overdose: an observational study of the effect of activated charcoal and increased acetylcysteine dose (ATOM-2). *Clin Toxicol* 2017; 55: 1055-65.

Rumack BH. Acetaminophen and acetylcysteine dose and duration: Past, present and future. *Clin Toxicol* 2012; 50: 91-98.

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