From: Ron Kirschner, MD, Medical Director

To: ALL HEALTH CARE PROFESSIONALS

Subject: Simplified acetylcysteine regimen for acetaminophen toxicity

Date: 3/17/2025

* In December 2024 the FDA approved a simplified “2-bag” regimen of intravenous acetylcysteine, which was first approved in 2004.
* The 2004 regimen was somewhat complex involving three separate infusions at different rates: 150 mg/kg over 1 h, 50 mg/kg over 4 h, and 100 mg/kg over 16 h.
* A drawback of that regimen was the high rate of non-allergic anaphylactoid reactions following the first dose due to its high infusion rate.
* The newer regimen combines the first two doses in one “bag” infusing 200 mg/kg over 4 h followed by 100 mg/kg over 16 h.
* In 2019, a group of hospitals in Colorado reported on their transition to a “2-bag” acetylcysteine regimen.
* While both regimens deliver 300 mg/kg over 20-21 h, it was initially thought the “3-bag” regimen might be more effective by delivering more drug in the first few hours.
* Subsequent studies have failed to demonstrate any efficacy advantage for the “3-bag” regimen.
* However, multiple studies have demonstrated that that use of the “2-bag” regimen results in fewer adverse reactions and fewer interruptions in treatment.
* The Nebraska Poison Center supports the use of either acetylcysteine regimen.

References

Cole JB. Is two better than three? A systemic review of two-bag intravenous N-Acetylcysteine regimens for acetaminophen poisoning, *West J Emerg Med*. 2023; 24:1131.

Hoyte C. Transition to two-bag intravenous acetylcysteine for acetaminophen overdose: a poison center’s experience. *Clin Toxicol* 2019; 57:217.

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