Wait a minute: Not all cases of paracetamol overdose need N-acetylcysteine, quality improvement project in Hamad General Hospital Emergency Department

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ABSTRACT

Background: Management of serious paracetamol overdose with N-acetylcysteine (NAC) is an effective strategy. Early treatment with NAC prevents the formation of a toxic metabolite that leads to hepatic injury. However, inappropriate treatment with NAC and overtreatment with NAC can lead to potential adverse side effects and unnecessary hospital admission.

The aim of the study was to assess the administration of NAC in the setting of paracetamol overdose and determine whether the institutional use of this antidote is consistent with the international standards. We hypothesize that some patients receive antidotal NAC unnecessarily after paracetamol exposure, and that a simple quality improvement intervention in educational activity may improve the administration of this antidote.

Methods: A retrospective quality improvement chart review evaluated charts of patients who were treated with NAC for paracetamol exposure over a 2-month period in the Emergency Department of Hamad General Hospital. The quality improvement intervention consisted of establishing a paracetamol clinical practice guideline, providing access to a treatment nomogram for NAC use, enhancing educational activities to improve the clinician’s understanding of appropriate NAC use, and establishing a clinical toxicology service for all paracetamol exposures.

Results: NAC administration to 67% of the cases after paracetamol exposure were found to be medically unnecessary according to the established international guidelines for management of paracetamol overdose. Post-intervention measurement showed significant improvement by decreasing unnecessary NAC administration to only 33%.

Conclusion: In our institution, NAC treatment after paracetamol exposure is usually administered unnecessarily. Inappropriate administration of this antidote results in a significant waste of resources and unnecessarily prolonged hospital stay.

Adherence to the clinical practice guidelines may lead to a significant improvement in this antidote use after paracetamol exposure. Given that this antidote is used inappropriately despite widespread knowledge that guidelines for paracetamol exposure exist, we believe that continuous education on the topic, chart audits and feedback, and use of a clinical toxicology service may improve the knowledge and appropriate use of this antidote and will improve patient care.

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