

HOUR Prediction Rule - Letter to the Editor.

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HOUR Prediction Rule

A related article appears on page 1203.

To the Editor:

In a recent issue of *Academic Emergency Medicine*, we read with interest the article “Hospital Observation Upon Reversal (HOUR) with Naloxone: A Prospective Clinical Prediction Rule Validation Study” by Clemency et al.¹ To avoid overreliance on this decision rule and possible untoward effects of early discharge, we feel that there are some key points worth considering in this regard.

It is important to note that the average dose of prehospital naloxone was 3.1 mg, which was administered intranasally (IN) in 85% of the patients. This fact was briefly discussed in the paper in terms of area under the curve (AUC). However, since AUC terminology may not readily translate to clinical meaning for many readers, we feel that expanded discussion on this potential confounder is necessary. A 2-mg IN naloxone dose will produce blood concentrations more than twice that of a 0.4-mg dose administered either IM or IV for at least 2 hours after administration.² Therefore, a 3-mg IN dose would be expected to result in blood concentrations significantly more than twice that of IM and IV administration for at least 2 hours afterward. It is known that the effective dose for reversing opioid-induced respiratory depression may be as little as 0.04 mg IV.³ A 3-mg IN naloxone dose would be expected to produce a blood concentration of naloxone enough to maintain opioid reversal for several hours after the initial dose, providing therapeutic benefit long enough for the opioid to be metabolized.

Given the current opioid epidemic and increasing prevalence of opioid dependence, there is an emphasis placed on the administration of a lower initial, prehospital naloxone dose to avoid precipitated withdrawal. In our locale, prehospital providers are commonly administering 0.4-mg naloxone doses IM or IV. A 0.4-mg dose via these routes of administration would satisfy the HOUR rule and provide reassurance to the provider that discharge is appropriate. The average half-life of naloxone is 64 ± 12 minutes. However, it

may be as little as 30 minutes. Additionally, the pharmacologic activity of naloxone may be more short-lived than its half-life would suggest due to rapid redistribution out of the brain.⁴ Therefore, although initially satisfying the HOUR rule, recrudescence of opioid toxicity may occur in those who receive smaller IM or IV naloxone doses. Since this scenario was not well represented in this study, we urge caution in applying the HOUR rule in patients who receive smaller IV or IM doses of naloxone. We agree with the authors that more study is needed.

Finally, proper SUD assessment, initiation of medication assisted treatment, and active linkage to proper addiction treatment are becoming common practices in the emergency department. Although feasible in larger academic centers with more resources, many community hospitals cannot accomplish that in 1 hour. In those settings, it is important to emphasize quality of care over speed of disposition.

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