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What is This?
An analysis of the length of hospital stay after acetaminophen overdose

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Abstract
Background: Acetaminophen is one of the most commonly encountered medications in self-poisoning, with a high rate of morbidity. The prevalence and characteristics of acetaminophen intoxication associated with long hospital stay in patients are not well defined. Objectives: This study aims to identify the clinical and demographic factors associated with the length of in-hospital stay (LOS), and to evaluate the effect of early treatment of acetaminophen overdose patients (<8 hours) by intravenous N-acetylcysteine (IV-NAC) on hospital stay. Methods: This is a retrospective cohort study of hospital admissions for acetaminophen overdose conducted over a period of 5 years from 1 January 2004 to 31 December 2008. Patients were divided into two groups: LS group patients had a long hospital stay (> median hours stay in hospital) and SS group patients had a short hospital stay (≤ median hours stay in hospital). Variables were abstracted from medical records for comparison between the two groups. A total of 20 variables were identified for comparison. Parametric and non-parametric tests were used to test differences between groups depending on the normality of the data. SPSS 15 was used for data analysis. Results: Of the 305 patients, 11 factors were identified in the univariate analysis as associated with LS. Three independent factors were found to be significant predictors of LS in the multivariate analysis. The factors associated with LS were seen among patients with a history of abdominal pain after ingestion of acetaminophen (p = 0.04), who were on IV-NAC administration (p < 0.001) and had an acutely depressed mood (p = 0.003). Late time to NAC infusion of more than 8 hours was associated with LS rather than SS (96 patients [57%] and 6 [24%], respectively; p = 0.003). Conclusion: Patients with long hospital stay have different clinical characteristics compared to patients with short hospital stay. We identified time to IV-NAC administration is a potentially modifiable factor that may lead to prolonged hospital stay. When risk assessment indicates that NAC is required, it is highly recommended that NAC be started in the first hours of admission to reduce the LOS.

Keywords
acetaminophen, overdose, hospital stay, N-acetylcysteine

Introduction
Acetaminophen (paracetamol) is a commonly used analgesic and antipyretic drug.¹ Acetaminophen overdose has been extensively reported in the USA and UK.²,³ It remains the most common means of pharmaceutical poisoning in the eastern nations, including Malaysia.⁴,⁵ In fact, acetaminophen in large doses is capable of causing both hepatic⁶,⁷ and renal failure.⁸ The risk of toxicity is initially determined from the extent of acetaminophen exposure after considering the stated amount ingested and comparison of serum acetaminophen concentrations to the Rumack–Matthew nomogram.⁹,¹⁰ The extent of hepatic and renal...