

Delayed by Beer; Late line-crossers on the Rumack-Matthew Nomogram

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Introduction:

Acetaminophen overdose can cause mild to severe hepatotoxicity, leading to acute liver failure and death, despite antidote availability. The Rumack-Matthew Nomogram predicts hepatotoxicity risk after acute acetaminophen overdose. Patients with low-risk concentrations at 4 hours may still be at risk, especially if co-ingestants affecting gastrointestinal motility are involved. We present a case in which a patient took beer along with a toxic dose of acetaminophen.

Case Description:

A 37-year-old alcoholic (60 kilogram) presented to us after deliberate ingestion of 20 tablets of 500mg immediate-release Panadol (10g) with 3 cans of beer. At 5 hours post-ingestion his Acetaminophen level was 357.3 $\mu\text{mol/L}$ which was below the nomogram line. His serum Alanine Transaminase (ALT) and Aspartate Transaminase (AST) were 44 U/L and 72 U/L respectively, and N-Acetylcysteine (NAC) was not commenced. Repeated concentration sampling after 14 hours returned a value above the treatment line at 575.9 $\mu\text{mol/L}$ with AST and ALT being 1264 U/L and 55 U/L respectively. NAC commenced at this point. The patient went on to develop acute hepatic failure with a peak ALT of 4936 U/L and AST of 8804 U/L. This later progressed to hepatic encephalopathy, and he was intubated. He eventually required two full cycles of NAC administration and treated symptomatically. Liver transplant was also considered but was deemed unsuitable. Eventually his liver enzymes improved, and later extubated. The patient was clinically well and discharged with a follow-up with a hepatologist.

Discussion:

Rare cases of hepatotoxicity have been reported despite an initial acetaminophen concentration below the nomogram line. There might be a delay to complete absorption in alcoholics or those that takes their overdose with an anticholinergic or opioids. If the initial level is not above the nomogram line at the 4-hour mark, then an 8 hour and 12-hour level should be drawn to be sure.

Conclusion:

The managing team needs to be cautious in alcoholics with acetaminophen overdose as co-ingestion of alcohol may delay the acetaminophen ingestion, giving false interpretation of toxicity. Repeated levels should be performed for such patients so that NAC can be started in a timely manner.

Keywords: Acetaminophen, beer, N-Acetylcysteine