

Assessing Appropriate Pediatric Acetaminophen Dosing Given by Caregivers: A Cross-Sectional Study

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Background: Acetaminophen is frequently given to children by well-meaning caregivers. Dosing in children is fraught with challenges; previous study has identified that incorrect acetaminophen doses are highly likely. It remains the most commonly reported drug in accidental and intentional ingestions, and despite an effective antidote, the analgesic most often resulting in death. As an over-the-counter (OTC) medicine, it is widely available in numerous dosage formats, and often disguised in combination products by brand marketers.

Hypothesis: More than fifty percent of caregivers inaccurately dose acetaminophen when treating pediatric fever.

Methods: This cross-sectional observational study enrolled caregivers of children, from birth to 13 years old, who presented to an urban academic pediatric emergency department with fever between August 2015 and April 2016. Recruited subjects completed a standard questionnaire evaluating demographics of subjects and their children; subject understanding of acetaminophen dosing and hazards; and fever determination and management. The hospital's Institutional Review Board approved the study. Study data was entered and stored in the Research Electronic Data Capture (REDCap) database. Data was analyzed using descriptive statistics. No monetary funding support was received.

Results: 142 subjects, predominantly young single black women from the local zip code, were enrolled. Their children were mainly black infants and toddlers younger than 3 years old. Overall reported home acetaminophen dosing ranged from 0.1-32 mg/kg. Forty-two percent were within the correct dosing range of 10-15 mg/kg, while 46% were underdosed and 12% overdosed. 11.2% of caregivers could report the concentration of liquid acetaminophen administered. Less than half (46.5%) of caregivers could identify serious risks of acetaminophen overdose.

Discussion: Despite OTC product labeling, and educational efforts by healthcare providers, the majority of caregivers reported using safe, but often inappropriate and sometimes unsafe, acetaminophen dosing. Underdosing is unlikely to control fever and may lead to unnecessary healthcare visits. Overdosing, particularly if multiple doses are administered, may result in acetaminophen toxicity. Initiatives to improve health literacy and educate caregivers about safe and appropriate use of acetaminophen should continue.

Conclusions: In this single center observational study, less than 50% of caregivers reported providing appropriate acetaminophen doses when treating their children's fever.