



Pathology Biology Section – 2009

G45 Malicious Use of Nonprescription Cough and Cold Medications in Children

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After attending this presentation, attendees will understand the process and outcomes of a systematic evaluation of pediatric deaths associated with nonprescription cough and cold drugs and will gain an awareness of the rare but apparent malicious use of these medications in children.

This presentation will impact the forensic community by increasing awareness of the malicious use of these drugs and encourage more detailed investigations into all pediatric deaths.

The safety of nonprescription cough and cold medication use in children less than 12 years of age has been questioned. To better understand the safety profile of these drugs, an independent expert panel reviewed available death reports of children less than 12 years of age with mention of a cough/cold ingredient that were obtained from three sources: English language medical literature (1949-2007), National Poison Data System (1983-2007) and Manufacturer Safety Records (1980-2007). The panel assessed the causal relationship between each reported drug and death using predetermined definitions for "Definitely Related", "Likely Related", "Possibly Related", "Unlikely Related", "Definitely Not Related", and "Unable to Determine". These definitions were based upon clinical course, drug exposure history, body fluid/tissue analytical evidence, and alternative cause of death. The panel also attempted to categorize the dose ingested (therapeutic/supratherapeutic), intent of administration (therapeutic/non-therapeutic) and potential contributing factors for all deaths determined to be at least possibly related to a cough and cold drug.

Of 227 fatality reports reviewed, 92 (41%) deaths were judged at least possibly related to one or more nonprescription cough and cold drugs. The panel determined that 79 of these involved a supratherapeutic dose of the suspect drug. The dose could not be assessed in the remaining 13 cases. There were no cases for which the panel suspected a therapeutic dose was involved. Of the 92 related deaths, 68 involved an overdose of the suspect drug administered by a caregiver. Ten such cases involved the administration of the drug in a daycare setting. Twenty-four reports (18 - age <2 years, 5 - age 2 to <6 years, 1 - age 6 to <12 years) indicated that the drug was given to the child without an appropriate therapeutic indication (i.e., not for cough or cold symptoms). The panel determined that malicious intent was a contributing factor in 20 cases. These were cases in which the drugs were used to either sedate or intentionally harm the child. Other signs of child abuse including hematomas and healed fractures were evident in some cases.

The incidence of non-accidental child injuries, specifically death, resulting from the misuse of nonprescription cough and cold medications or other drugs is unknown, in part because there is no standard laboratory testing during pediatric fatality investigations. Postmortem drug concentration levels are rarely reported because appropriate specimens are not routinely collected during autopsy. These body fluid/tissue drug levels are often difficult to obtain due to limited specimen and analytical challenges. They are also difficult to interpret due to postmortem effects including redistribution as well as limited peer-reviewed reference ranges for the pediatric population. Interpretation of drug levels should be done with pharmacokinetic parameters and must not rely on published ranges which do not take into account the elapsed time since administration of the drug. Those performing investigations of pediatric deaths, especially in children less than 2 years of age, should consider overdose of cough and cold medications and other drugs, including instances of malicious use of these drugs by parents or caregivers.

Pediatric Deaths, Nonprescription Medications, Drug Toxicity