



K50 Death Due to Acetaminophen, Doxylamine, Dextromethorphan Toxicity in an Infant

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The primary purpose of this presentation is to discuss the inherent danger of treating neonates with medication intended for adult. This is a report of an infant death due to poly over the counter drug toxicity. After a thorough review of the medical investigator's report, the autopsy findings and the toxicology results, it was concluded that the cause of death in this case was acute multiple drug toxicity, with the manner of death being homicide.

The impact of this presentation is to point out the lethal concentration of acetaminophen, dextromethorphan and doxylamine in a neonate.

The deceased is a 5-week-old male, reported by the mother to have had a runny nose, a cough and a temperature of 101.3°F the evening of May 8. At 7:00 am the next morning, the mother gave the infant a fever reducer before she left for work, put him to bed and left him in the care of his father. The father reported the infant was irritable all day but otherwise symptomless. At some point during the day the father gave the infant "a half a dropper" of Nyquil, the exact amount undetermined. Sometime between 4:00 and 5:00 PM the father reported that he wrapped the infant in a thin sheet and put him to bed with a bottle of formula, with the bottle being propped up on a pillow. When the mother arrived home from work at 6:30pm she was told by the father that the infant was sleeping and shouldn't be disturbed. Before leaving to run an errand at 7:00 pm, the father reportedly removed the bottle from the infant's mouth but did not check further. At 7:55 pm, the mother discovered the infant cold, cyanotic and unresponsive, with milk vomitus evident. Toxicological analysis of the blood, urine, liver blood and stomach contents obtained at autopsy were subjected to a full toxicological screening which revealed the presence of ethanol, doxylamine, dextromethorphan and acetaminophen. Volatiles were quantitated by headspace GC/FID, doxylamine and dextromethorphan were extracted using a standard basic extraction and quantitated by GC/NPD and acetaminophen was quantitated by HPLC with UV detection. The results were ethanol (0.01 g/dL), doxylamine (1.2 mg/L), dextromethorphan (0.60 mg/L) and acetaminophen (294 mg/L). The stomach contained less than 125 mg/L acetaminophen and less than 2.5 mg/L each of doxylamine and dextromethorphan. The milk in the bottle was unavailable for testing.

Deaths have occurred in children from acetaminophen at 54 mg/L. The average in 139 *adults* who died of acetaminophen overdose in combination with at least one other drug was 170 mg/L. The range in 3 doxylamine fatalities is 0.7-12 mg/L, in dextromethorphan 1.1-18 mg/L.

Further investigation revealed that the father had given the infant *adult* Nyquil rather than Children's Nyquil. Adult Nyquil contains alcohol, dextromethorphan (15 mg/15 mL dose), doxylamine (6.25 mg/dose), acetaminophen (500 mg/dose) and pseudoephedrine (30 mg/dose). Children's Nyquil contains *no* alcohol, doxylamine or acetaminophen, equivalent amounts of dextromethorphan and pseudoephedrine as the adult preparation, and chlorpheniramine (2 mg/15 mL dose).

The cause of death was reported as acute multiple drug toxicity, the manner of death was homicide.

Over the Counter Drugs, Nyquil, Infant Death