

Children's deaths linked to post-tonsillectomy codeine, study says

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Western researchers are sounding an alarm over the danger of giving children pain-killers containing codeine following a tonsillectomy for obstructive sleep apnea syndrome (OSAS).

In 2009, Dr. Gideon Koren, the Ivey Chair in [Molecular Toxicology](#) at Western's Schulich School of Medicine & Dentistry, first reported the fatal case in of a toddler who had received codeine after having a [tonsillectomy](#) for OSAS. Now, he has identified three additional fatal or life-threatening cases in North America. The case report is published in the May issue of [Pediatrics](#).

The report studies two fatal cases, one from northern Ontario where a 4-year-old First Nations boy died the day after being released from hospital after receiving four age-appropriate doses of liquid codeine. Genotyping found the boy had an ultra-rapid metabolism genotype which caused his body to metabolize codeine at a faster rate, producing greater amounts of morphine. In the second fatal case, a 5-year-old boy from the southern United States died 24 hours after surgery after being prescribed acetaminophen and codeine every four hours.

The study also investigated a third case where a 3-year-old Canadian girl was rushed to hospital after being found unresponsive, and was resuscitated. Again, she had undergone tonsillectomy for OSAS and received codeine and acetaminophen.

"These very troubling cases strongly suggest that many more are

occurring and go undiagnosed," said Koren, a professor of Medicine, Paediatrics and Physiology and Pharmacology at Western, and the director of The Motherisk Program at the Hospital for Sick [Children](#) in Toronto. "We cannot go on assuming that codeine is safe for all young children after tonsillectomy. We must also examine the practice of sending them home right after surgery while receiving codeine, which decreases their respiratory drive and increases the risk of respiratory arrest."

The study found a one-night follow-up in hospital may not be able to effectively detect all the children at increased risk of severe respiratory complications.

It's estimated between 600,000 and 1.8 million children in North America under the age of 15 are affected by OSAS, which disrupts ventilation and breathing patterns during sleep. The primary treatment is surgical intervention, generally adenotonsillectomy.

"Obstructive [sleep](#) apnea is a prevalent condition and currently there aren't any agreed upon standards in North America for treating paediatric post-tonsillectomy pain," said Lauren Kelly, a PhD candidate at Western and the first author on the paper. "Many children are treated with codeine for a wide range of indications and it appears that some children are at an increased risk for morbidity/mortality despite receiving standard doses. More research is required to help physicians identify these risk factors and be able to safely manage these children.

"Hopefully, these cases will serve to prevent future such tragedies by alerting physicians to these high risk children and encouraging them to carefully monitor respiratory status following [codeine](#) use post-tonsillectomy."

Provided by University of Western Ontario

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