Are artificial sweeteners putting kids at risk for asthma?

June 5 2019

Credit: CC0 Public Domain

Originally synthesized in 1879 by Ira Remsen and Constantin Fahlberg, saccharin was the first artificial sweetener discovered. Fast forward to today and the artificial sweetener industry is booming with annual revenues exceeding $2 billion and numerous artificial sweeteners on the market in both food and drink products. Around 40 percent of adults and 25 percent of children have reported consuming artificial sweeteners on any given day.

While these intensely sweet compounds are generally considered safe, we still know very little about their impact on pregnant women and their babies. With the prevalence of artificial sweetener consumption during pregnancy nearing one in four women, we need to better understand the impact of these compounds on infants. Research has indicated the consumption of artificial sweeteners during pregnancy can increase the body weight of offspring, putting them at risk of obesity related complications later in life. Another report has suggested the consumption of artificially sweetened food during pregnancy could increase a child's risk for developing asthma, but it is unclear how or why this may occur.

To better understand the cause-effect relationship between artificial sweetener exposure during pregnancy and lung health in children, we turned to a novel animal model developed in the lab of Andrew Halayko (Canada Research Chair in Chronic Lung Disease Pathobiology and Treatment Physiology) lab at the Max Rady College of Medicine, with funding from the Banting Postdoctoral Fellowship and Developmental Origins of Chronic Disease in Children Network (DEVOTION).

With this model, we can assess how consuming artificial sweeteners, like aspartame or sucralose, during pregnancy changes the sensitivity of the offspring to common allergens in asthma. We can also determine if

exposure during pregnancy or breastfeeding is more important for asthma risk and therefore, allow us to develop preventative strategies to limit new cases of asthma. This model can be applied to other environmental exposures (marijuana, air pollution, dust) thought to increase a child's risk for asthma in order to gain a better understanding of the origins of asthma and allow us to develop strategies aimed at decreasing the incidence of asthma in Canada.

I chose to come to the U of M and the Children's Hospital Research Institute of Manitoba (an affiliated research partner of the university) for my post-doctoral training because the institute has a strong group of lung researchers that are renowned for their training and mentoring skills. Securing the prestigious Banting Postdoctoral Fellowship is a testament to the impactful mentorship and guidance I have received in my time at the university. It is my desire to continue researching treatment options for lung disease that are based on the natural history of the disease and to eventually prevent lung disease in people by understanding its origins. This way, we may one day see a world in which young children are not hindered in their daily activities by a difficulty to breath.

Provided by University of Manitoba