

Drug allergies mistreated and undiagnosed

MONTREAL, QC (26 December 2017) – A new Canadian study, led by a team at the Research Institute of the McGill University Health Centre (RI-MUHC), is shedding light on drug-induced anaphylaxis—an unpredictable and potentially fatal allergic reaction to medications, about which surprisingly little is known.

[The findings](#), published in early November in the open-access journal *Immunity, Inflammation and Disease*, reveal that drug-induced anaphylaxis (DIA) represents up to 22% of adult anaphylaxis cases and up to 7% of pediatric anaphylaxis cases in Canadian emergency departments, and that the condition is commonly mistreated and undiagnosed.

“Allergic reactions to medications can be severe,” says AllerGen researcher and RI-MUHC’s Dr. Moshe Ben-Shoshan, who is a pediatric allergist and immunologist at the Montreal Children’s Hospital of the MUHC, and an assistant professor of Pediatrics at McGill University. “Our study gives the first reliable picture of the number of drug-related reactions presenting in Canadian emergency departments, how these reactions are treated, and the most common ‘culprit’ drug for triggering a reaction in adults and children.

Almost 600,000 Canadians will experience anaphylaxis in their lifetime. The reaction can occur within seconds or minutes of exposure to an allergen which may include medications, food, insect stings or substances such as latex. Anaphylaxis is defined as allergic symptoms involving at least two organ systems including the skin (hives, swelling), the gastrointestinal tract (vomiting, cramps), respiratory system (difficulty breathing, cough, wheezing) and cardiovascular system (drop of blood pressure).

For their study, the researchers collected four years of data from the national anaphylaxis registry known as C-CARE (Cross-Canada Anaphylaxis REgistry). Launched in 2011, C-CARE identifies and tracks cases of anaphylaxis through reports from “first responders,” including ambulance paramedics, emergency department staff and allergists. The data were collected from two centres in Quebec (Montreal Children’s Hospital, Hôpital Sacré-Coeur), one centre in British Columbia (British Columbia Children’s Hospital), and one centre in Ontario (London Health Science Centre).

The research team found that adult DIA reactions are triggered primarily by antibiotics, while most reactions in children are triggered by non-antibiotic medications, such as aspirin and other fever/pain relief medications. The study also highlights the underuse of epinephrine to treat DIA: only 51.6% of adults and 58.8% of children were treated with epinephrine in the emergency department, while the remaining cases were treated with antihistamines or steroids.

“Interestingly, we also found that most cases of suspected drug allergy in both age groups were not appropriately diagnosed,” adds first-author Sofianne Gabrielli, an AllerGen trainee and a research associate at RI-MUHC. “The majority of adults and a third of the children in our study

did not see an allergist to confirm their drug allergy after the initial emergency department visit, which is surprising.”

“Our findings highlight the need for uniform guidelines, such as the regulated use of epinephrine, to properly manage DIA in the emergency department,” adds Dr. Ben-Shoshan. “It is also critically important for patients, parents, and healthcare providers to understand the appropriate use and technique to administer epinephrine in cases of drug-related anaphylaxis, and the importance of consulting a trained allergist in order to obtain a proper diagnosis for improved patient health.”

About AllerGen NCE Inc.

AllerGen NCE Inc., the Allergy, Genes and Environment Network (est. 2004), is a national research network dedicated to improving the quality of life of people suffering from allergic and related immune diseases. Funded by Innovation, Science and Economic Development Canada through the federal Networks of Centres of Excellence (NCE) Program, the Network is hosted at McMaster University in Hamilton, ON. Visit allergen-nce.ca for more information.

About the Research Institute of the MUHC

The Research Institute of the McGill University Health Centre (RI-MUHC) is a world-renowned biomedical and healthcare research centre. The Institute, which is affiliated with the Faculty of Medicine of McGill University, is the research arm of the McGill University Health Centre (MUHC) – an academic health centre located in Montreal, Canada, that has a mandate to focus on complex care within its community. The RI-MUHC supports over 420 researchers and close to 1,200 research trainees devoted to a broad spectrum of fundamental, clinical and health outcomes research at the Glen and the Montreal General Hospital sites of the MUHC. Its research facilities offer a dynamic multidisciplinary environment that fosters collaboration and leverages discovery aimed at improving the health of individual patients across their lifespan. The RI-MUHC is supported in part by the Fonds de recherche du Québec – Santé (FRQS).
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