

Dr. Moshe Ben-Shoshan, M.D., M.Sc.

Associate Professor, Division of Allergy and Clinical Immunology,
Department of Pediatrics, McGill University

Associate member, Department of Epidemiology, Biostatistics and
Occupational Health, McGill University

Pediatric Allergy and Immunology Specialist, Montreal Children's
Hospital



Project:

Anaphylaxis in the Emergency Room: Are we treating it poorly?

Summary:

Treatment guidelines for managing anaphylaxis in children should be reassessed, according to a new Canadian study published in the Journal of Allergy and Clinical Immunology: In Practice.

Involving nearly 3,500 patients, it is the largest study to assess the clinical outcomes of pre-hospital treatment of anaphylaxis, including the use of epinephrine, antihistamines and steroids. Of the cases examined, 80.3% were children.

“We found that steroids, which are part of the treatment algorithm for managing anaphylaxis, can have a negative effect,” says AllerGen researcher Dr. Moshe Ben-Shoshan, a pediatric allergist and immunologist at the Research Institute of the McGill University Health Centre (RI-MUHC) and Montreal Children’s Hospital, and assistant professor of Pediatrics at McGill University.”

“We collected data from emergency departments (ED’s) across the country and found that admission to the intensive care unit or the hospital ward was almost three times more likely in anaphylaxis cases treated with corticosteroids in the pre-hospital setting. Although we could not comment on the use of steroids in the ED specifically, our results suggest that the role of steroids in the guidelines of anaphylaxis management should be reassessed.”

Anaphylaxis, known to be a sudden and potentially life-threatening allergic reaction, was defined in the study as a reaction involving at least two organ systems and/or a sudden drop in blood pressure.

The researchers analyzed data from nine EDs in five provinces between 2011 and 2017, as part of AllerGen’s nationwide Cross-Canada Anaphylaxis REgistry (C-CARE). C-CARE is led by RI-MUHC researcher Dr. Ben-Shoshan and is the first prospective study on anaphylaxis to assess the rate, triggers and management of anaphylaxis in different provinces and settings across Canada.

The benefit of using epinephrine to manage anaphylaxis was also highlighted.

“Our study shows for the first time that use of epinephrine in the pre-hospital setting has a significant positive impact on the clinical management of anaphylaxis,” says first-author Sofianne Gabrielli, an AllerGen trainee and a research associate at RI-MUHC. “We found that when

epinephrine was used before arriving at the hospital, patients were nearly five times less likely to require multiple doses of epinephrine in the ED to control anaphylaxis.”

According to the researchers, these results suggest that current anaphylaxis management algorithms should be modified, at least in the pre-hospital setting, to exclude steroids and to administer antihistamines only in conjunction with epinephrine in all cases of anaphylaxis.

Among the study’s other findings:

Less than one-third (31%) of anaphylactic reactions were treated with epinephrine before arriving at the hospital. Antihistamines were used in 46% of cases and steroids in 2% of cases in the pre-hospital setting.

The majority of the anaphylactic reactions were caused by food (79%), while 5% of reactions were caused by drugs and 2% were caused by venom.

The most common food triggers causing anaphylaxis were peanut (21%), tree nut (15%), egg (7%), and milk (7%).

The majority of anaphylactic reactions were of moderate severity (74%) and the most common setting for reactions to occur was at home (55%).

“It is concerning that less than one-third of reactions were treated with an epinephrine autoinjector prior to arriving at the hospital,” comments Jennifer Gerdtz, a study co-author and Executive Director of Food Allergy Canada, a non-profit charitable organization that educates, supports and advocates for Canadians with food allergies and those who care for them.

“The findings from this study reinforce the need to equip individuals with the knowledge and confidence to assess the signs and symptoms of anaphylaxis, and to treat it swiftly with an epinephrine autoinjector when it occurs. Our current Give and Go campaign is one educational initiative intended to achieve this, but much more is required to understand and address this significant gap.”