



The Journal of Allergy and Clinical Immunology: In Practice

Volume 7, Issue 7, September–October 2019, Pages 2232-2238.e3

Original Article

Evaluation of Prehospital Management in a Canadian Emergency Department Anaphylaxis Cohort

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The Journal of Allergy and Clinical Immunology: In Practice, Volume 7, Issue 7, September–October 2019, Pages 2239-2240

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Background

Studies assessing the use of antihistamines and corticosteroids for the treatment of anaphylaxis have not supported a conclusive effect.

Objective

To assess prehospital management of anaphylaxis by measuring the effect of epinephrine use compared with antihistamines and corticosteroids on negative outcomes of anaphylaxis (intensive care unit/hospital ward admission, multiple

doses of epinephrine in the emergency department [ED], and intravenous fluids

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Methods

The Cross-Canada Anaphylaxis Registry is a cohort study that enrolls anaphylaxis cases presenting to EDs in 5 Canadian provinces over a 6-year period. Participants were recruited prospectively and retrospectively and were excluded if the case did not meet the definition of anaphylaxis.

Results

A total of 3498 cases of anaphylaxis, of which 80.3% were children, presented to 9 EDs across Canada. Prehospital treatment with epinephrine was administered in 31% of cases, whereas antihistamines and corticosteroids were used in 46% and 2% of cases, respectively. Admission to the intensive care unit/hospital ward was associated with prehospital treatment with corticosteroids (adjusted odds ratio, 2.84; 95% confidence interval [CI], 1.55, 6.97) while adjusting for severity, treatment with epinephrine and antihistamines, asthma, sex, and age. Prehospital treatment with epinephrine (adjusted odds ratio, 0.23; 95% CI, 0.14, 0.38) and antihistamines (adjusted odds ratio, 0.61; 95% CI, 0.44, 0.85) decreased the likelihood of receiving multiple doses of epinephrine in the ED, while adjusting for severity, treatment with corticosteroids, asthma, sex, and age.

Conclusions

Prompt epinephrine treatment is crucial. Use of antihistamines in conjunction with epinephrine may reduce the risk of uncontrolled reactions (administration of 2 or more doses of epinephrine in the ED), although our findings do not support the use of corticosteroids.

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Key words

Anaphylaxis; Antihistamine; Corticosteroids; Epinephrine; Prehospital management

Abbreviations used

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ACE, Angiotensin-converting enzyme; aOR, Adjusted odds ratio; C-CARE, Cross-Canada Anaphylaxis Registry; CI, Confidence interval; ED, Emergency department; ICU, Intensive care unit; IQR, Interquartile range; IV, Intravenous; NSAID, Nonsteroidal anti-inflammatory drug

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This study is funded by Allergan NCE and Health Canada.

Conflicts of interest: The authors declare that they have no relevant conflicts of interest.

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