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# Effect of Prescription Drugs on Anaphylaxis Severity and Symptoms

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## 054 Effect of Prescription Drugs on Anaphylaxis Severity and Symptoms

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**RATIONALE:** Anaphylactic reactions are medical emergencies presenting with varying levels of severity, which may be influenced by drug intake. We aimed to assess the severity of anaphylaxis in patients taking statins, beta-blockers, angiotensin-converting enzyme (ACE) inhibitors, tricyclic antidepressants as well as proton-pump inhibitors.

**METHODS:** From 2011 to 2019, patients with anaphylaxis were recruited as part of the Cross-Canada Anaphylaxis REgistry study. Research assistants collected data on patients' demographics, co-morbidities, clinical presentation, reaction severity using a standardized questionnaire.

**RESULTS:** Over an 8-year period, 4152 patients presented with anaphylaxis, of which 56.6% were male, with a median age of 7.5 years (interquartile range [IQR]: 2.7, 15.2). Majority (78.9%) of reactions were classified as severe or moderate. A total of 98 patients presenting with anaphylaxis self-reported use of an aforementioned drug. More specifically, 28 were using beta-blockers, 36 were taking proton-pump inhibitors, 23 were taking ACE inhibitors, 15 were using statins, and 6, tricyclic antidepressants.

Out of the 362 severe cases, 4 were using proton-pump inhibitors, 4 were taking ACE inhibitors, 3 were using beta-blockers and 2, tricyclic antidepressants. None of those with severe reactions were using statins. Severe reactions were associated with the intake of tricyclic antidepressants while controlling for age, sex, cardiac comorbidities (aOR 1.22, 95% CI 1.00, 1.58). Hypotension was associated with the use of ACE inhibitors while controlling for these same factors (aOR 1.16, 95% CI 1.01, 1.33).

**CONCLUSIONS:** Use of tricyclic antidepressants and ACE inhibitors was associated with severe anaphylaxis. Future studies should elucidate the reasons for these findings.

## 055 Incidence of and Risk Factors for Chemotherapy-Induced Anaphylaxis Agents in the United States

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**RATIONALE:** The incidence of chemotherapy-induced anaphylaxis (CIA) is unknown. The objective of this study is to analyze the incidence of CIA in the United States; and to compare patient characteristics and risk factors.

**METHODS:** Using the Nationwide Inpatient Sample from 2005 through 2014, we identified cases of chemotherapy administration using the clinical classification software code 224. Anaphylaxis was identified using the ICD-9 CM code 995.0 (other anaphylactic reaction) or the combination of one of the following: 995.3 (allergy, unspecified) or 995.2 (adverse drug effect), or E930-E949 with a code for acute respiratory compromise (519.11 or 786.1) or hypotension (458.9).

**RESULTS:** Among 336,610 patients, there were 209 (0.06%) patients with CIA with a mortality of 1.9%. The mean age was 40 (±9.13); 52.6% were female and 69.4% were white. Univariate analysis revealed that age <18 year old (OR 1.65; 95%; CI 1.30-2.08; P<.001), female sex (OR, 1.36; 95% CI, 1.03-1.78; P = .028), and chronic pulmonary disease (OR, 1.53; 95% CI, 1.02-2.31; P = .041) showed increased odds of anaphylaxis. Compared to controls, CIA patients had a higher median hospital cost ($38,226 versus $25,344; P <.0001) while length of stay was not significantly affected.

**CONCLUSION:** The incidence of chemotherapy-induced anaphylaxis is 1 in 1,610 with a mortality of 2%. Patients age <18 years old and women are at increased risk for chemotherapy-induced anaphylaxis. Patients with CIA also have higher cost of hospitalization compared to controls. To the extent of our knowledge this is the first study to report the incidence of CIA in the US.

## 056 Descriptive study of Anaphylaxis reactions induced by drugs in a referral hospital

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**RATIONALE:** Drugs are one of the main causes of induced-anaphylaxis, with a prevalence increasing over the last years. Our aim was to describe drug-induced anaphylaxis(DIA) in our Allergy-unit.

**METHODS:** We included adults with suspicious of DIA in a period of nine years(2010-2019). Diagnosis was established by clinical-history, skin-tests(ST), drug provocation-test(DPT) and/or in vitro test(quantitation of specific IgE antibodies). Atopy was determined by skin tests with a panel of aeroallergens.

**RESULTS:** We included 408 cases with clinical-history compatible with DIA(female 71 %;mean-age 53,22 y.o;atopic 39%).

NSAIDs were the most common elicitors(46%), being Pyrazolones(59%) and Arylpropionics(35%)the main responsible. Diagnose was assessed: clinical history(62%), ST(19%) and DPT(19%).

Betalactams were the second cause(34%), being AX-CLAV(42%) and AX(41%) the most frequent involved. Diagnose:clinical history(20%), ST(59%), in vitro test(4%) and DPT(17%).

Quinolones, were the third cause(6%),with moxifloxacin(46%) being the most frequent culprit, followed by Ciprofloxacin(23%) and Levofloxacin(19%). Diagnose: clinical history(54%), ST(30%) and DPT(15%).

Contrast media were responsible for the 3% of DIA, being iodinated agents(77%) more frequent than gadolinium(23%). Diagnose: clinical history(62%), ST (23%) and DPT(15%).

Concerning perioperative reactions(3%), NMBAs were the most involved(50%), followed by morphine (17%). Diagnose: clinical history(17%), ST(50%) and DPT(17%).

Other drugs less frequent involved were: opioids (3%), proton-pumps inhibitors(1%), macrolides(0,7%), ranitidine(0.5%) and sulfamethoxazole(0,5%), among others.

**CONCLUSIONS:** NSAIDS and Betalactams were the most frequent elicitors of DIA followed by quinolones. Due to the severity of the reactions diagnosis was mostly obtained by clinical history and ST, whereas DPT was only considered depending on the severity of the anaphylaxis.