Medication incidents related to drug-induced allergies

By Leo Kim and Certina Ho

We all know someone who suffers from allergies, whether it's a friend who cannot consume peanut-containing products or a cousin who sneezes uncontrollably in front of your dog. But what if the allergy was related to a medication? Would you know what symptoms to expect and which medications to avoid?

Drug-induced allergic reactions generally occur independently of the dose; they are separated from the pharmacologic actions of the drug, and occur selectively in susceptible individuals. They account for approximately five to 10 per cent of all adverse drug reactions and range from mild local discomfort to life-threatening systemic anaphylaxis. Fortunately, many medication incidents involving drug allergies can be preventable, especially in cases where the patients' allergies have been previously and properly documented. Given the frequency and potentially serious nature of drug-induced allergies, it is important to consider why these incidents occur and how they can be prevented.

To examine medication incidents in the community related to drug-induced allergic reactions, the Institute for Safe Medication Practices Canada (ISMP Canada) performed a multi-incident analysis to identify contributing factors from these reported events. Voluntary reports of medication incidents were extracted from the Community Pharmacy Incident Reporting (CPhIR) program (http://www.cphir.ca), a database designed by ISMP Canada with support from the Ontario Ministry of Health and Long-Term Care. After reviewing 273 medication incidents, we were able to categorize them into three major themes based on common characteristics and further divided into subthemes, as shown in Table 1.

Table 1 – Themes and Subthemes of Potential Contributing Factors for Drug Allergy-Related Medication Errors

THEMES	SUBTHEMES
Missing Documentation	• Prescriber-related • Pharmacy-situated
Computer Detection Incapacity	• Inactive or non-medicinal ingredients • Cross-reactivity • Free-form entry of patient's allergy information
Alert Bypass	• Alert fatigue

Missing Documentation – Drug allergy information should always be obtained and recorded in the patient's medical profile. Furthermore, it is important to engage in a dialogue with the patient and/or the patient's caregiver as a way to prevent potential incidents. For example, as an additional check before providing a medication to a patient, ask the patient about his/her allergies.

Computer Detection Incapacity – It may be helpful to consider enhancement of the functionality of the pharmacy computer system for allergy detection, with elimination (as much as possible) of the need for "free-form texting or inputting" of allergy information in the patient profile. This would include ensuring that inactive or non-medicinal ingredients are also included in the computer allergy database. To avoid incidents related to documented drug allergies that are undetected by the computer, independent double checks should be performed for each prescription during the order entry and dispensing process.

Alert Bypass – Electronic prescription order entry systems require continuous quality improvement in order to minimize the potential for users' "alert fatigue" with drug allergy warnings. For instance, information regarding the number, frequency, and timing of manual alert overrides may be collected and used to inform updates to the computer system. It is also prudent to ensure that a pharmacist reviews the alerts that are being removed by the manual alert override function.

Drug-induced allergic reactions can occur unexpectedly with various medications and can have serious consequences to patient care if not recognized and prevented in an appropriate manner. Learning from medication incidents and identifying potential systems-based contributing factors are key steps for facilitating continuous quality improvement in medication safety. H

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