Anaphylaxis: how would you react?

A 15 year old patient presented to an emergency department for management of pneumonia. He was administered Azithromycin and soon developed symptoms of an allergic reaction which was managed with an oral antihistamine.

Thirty minutes later the patient complained of “feeling tight in his chest” and started coughing. It was identified at this stage he was also tachycardic to 126 beats per minute. The emergency buzzer was initiated and the patient was transferred to the resus bay with probable anaphylaxis.

A verbal order was given by the junior doctor for a nurse to “get some adrenaline”

A verbal order was given by the junior doctor for a nurse to “get some adrenaline” and discussed giving the dose intravenously but did not chart the order.

The registered nurse took a vial of 1 mg 1:1000 adrenaline from the resus trolley. Without verifying the dose the nurse administered the 1 mg dose of adrenaline intravenously.

Without verifying the dose the nurse administered the 1 mg dose of adrenaline intravenously.

The patient soon became tachycardic to 180 beats per minute, developed acute pulmonary oedema and his oxygen saturations dropped to below 78% in room air. The patient developed pulmonary oedema which was attributed to the IV adrenaline while the cardiogenic shock was believed to be secondary to myocardial damage.

The patient required CPAP and an infusion of dobutamine to maintain his blood pressure and was transferred to a specialist children’s hospital Intensive Care Unit where he continued to have T wave changes and an elevated troponin which were both attributed to cardiogenic shock.

He was discharged after 5 days and required ongoing follow up with the cardiologist.

Lessons learnt:

Clear communication in any resuscitation is critical. This includes the name of the drug, dose required, strength and route.

A closed loop of communication directed at the clinician ordering the medication is also an important step in reducing errors in highly stressful environments e.g. “I am giving 1 mg adrenaline IV, can I proceed?” All medications must be checked by 2 clinicians accredited to do so.

Despite the publication of recent guidelines for anaphylaxis management, many studies show that physicians are still not at ease with the management of anaphylaxis.

In fact an adult study by Drost and Narayan (2010) found that only 15% of UK doctors would give adrenaline as recommended by the UK resuscitation guidelines.

A recent paper looking at medication errors in the management of anaphylaxis in a Canadian paediatric ED highlighted that errors were frequent.

It is however also important to point out that errors associated with adrenaline go beyond anaphylaxis. Adrenaline is used in the highly stressful environment of paediatric resuscitation and there is often confusion between how the medicine is ordered i.e. micrograms, milligrams, mL and the way the medicine is named i.e. 1:1000, 1:10 000. Conversions between these are confusing and can often lead to x10 times dose errors.

Conversions between these are confusing and can often lead to x10 times dose errors.

Electronic paediatric drug dose calculator programs and resources such as the Broselow® system can be helpful safety tools in reducing potential errors and take out the stress of calculating doses during resuscitation of paediatric patients.

Want to learn more. Please visit the following websites:

Clinical Excellence Commission – Paediatric Quality Program
Clinical Excellence Commission – Medication Safety
Royal College of Paediatrics’ and Child Health Meds

References