Praktijkprikkel 2025-09

2025-09 Practice sting Intravenous or intramuscular treatment of anaphylaxis

This Practice Sting is particularly relevant for prescribers, (hospital) pharmacists, nurses and medications safety committees.

VMI adviseert voorschrijvers en verpleegkundigen om afspraken te maken over de feedback op voorschrijven.

Incident

An 18-year-old woman presents to the out-of-hours GP clinic with severe swelling of the throat, lips, and face. She is coughing heavily and experiencing difficulty breathing. The symptoms began after dining at a restaurant. She has a known allergy to nuts. At the clinic, she was treated with 0.5 mg intramuscular adrenaline, 2 mg intramuscular clemastine, and 4 mg intramuscular dexamethasone. Her symptoms improved following treatment. The GP referred her to the hospital.

At the hospital, a recently graduated junior doctor assessed her. During the examination, the swelling in her throat worsened, her coughing increased, and facial swelling intensified. She was no longer able to speak in full sentences. The doctor decided to administer adrenaline again and discussed this with the nurse. The doctor intended to prescribe 0.5 mg intramuscularly, but the nurse indicated that intravenous administration was standard in such cases. The doctor then issued a medication order for 0.5 mg intravenously. The nurse administered the adrenaline intravenously. Shortly afterward, the patient became pale, developed tachycardia, and began vomiting profusely. The monitor alarm sounded. After some time, the patient recovered.

Recommendations for medications safety committees.

- Share this report with all departments within your institution where medications are administered to patients.
- During departmental meetings—where nurses, physicians, and other prescribers are present—discuss the following:
    - Have we encountered similar incidents?
    - Could such an incident occur in our department?
    - How do nurses provide feedback to prescribers?
    - How should prescribers and nurses handle feedback from one another?
    - What agreements can we make regarding this?
    - How will we evaluate these agreements?
    - How will we monitor to ensure such incidents no longer occur in our department?

Analysis

According to the Dutch Pharmacotherapeutic Compass, the recommended dosage of adrenaline is:

- **For anaphylaxis**: 0.2–0.5 mg intramuscularly or subcutaneously, up to a maximum of 1 mg per dose; repeat every 10 to 15 minutes if necessary.

- **For anaphylactic shock**: After 0.5 mg intramuscular adrenaline, administer 0.025–0.05 mg intravenously; repeat every 5 to 15 minutes if necessary.
- **In critical situations**: 0.1–0.25 mg intravenously, administered no faster than 0.02 mg per minute; repeat every 5 to 10 minutes if necessary.

From this, it is evident that the dosage prescribed by the doctor for intravenous administration was at least 10 times too high. The nurse, by suggesting that intravenous administration was standard in this situation, clearly influenced the doctor's prescribing behavior. The doctor was unaware that the intravenous dosage of adrenaline is 10 to 20 times lower than the intramuscular dosage.