KING'S HEALTH PARTNERS

An Academic Health Sciences Centre for London

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Medicines Safety Bulletin

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ACE inhibitors: Risk of bradykinin-mediated angioedema

Angioedema is the swelling of tissue under the skin or mucous membranes. It can affect any area of the body. When angioedema involves the mouth or throat, difficulty in breathing may develop quickly and can be life threatening.

Angioedema may be allergic (histamine-mediated) or, less frequently, non-allergic (bradykinin-mediated). Bradykinin-mediated angioedema may be brought on by stress, infection, or medications, and is unlikely to respond to standard allergy and anaphylaxis treatments. Rarely, patients have an inherited predisposition for the development of bradykinin-mediated angioedema, a condition known as hereditary angioedema.

Of the medications known to induce angioedema, ACE inhibitors (e.g. ramipril, lisinopril) are most common cause in practice. This side effect may occur at any time during treatment - even after years of uneventful use. Avoid use of ACE inhibitors when a patient has a history of angioedema. The MHRA has strengthened its warning. NICE advice also exists.

Actions for staff:

- Discontinue ACE inhibitors immediately in patients with suspected angioedema and do not restart.
- Consider non-allergic causes of angioedema, such as ACE inhibitors, where there is a lack of response to standard treatments.
- In airways compromise, seek expert help early Follow local or national resuscitation guides.
- Record the reaction in the patient's allergy record if angioedema is linked to a medicine.
- Counsel patients prescribed ACE inhibitors that although uncommon, angioedema can occur at any time. If they develop swelling of the face, lips, tongue or throat, counsel them to stop taking the ACE inhibitor and seek urgent medical attention.

Look-Alike Sound-Alike: Levofloxacin and levothyroxine



Figure 1. Pack of levofloxacin and levothyroxine

In a recent incident, levothyroxine 250micrograms daily was prescribed in error instead of levofloxacin 500mg once daily. The patient received two doses of levothyroxine and antibiotics were delayed for 2 days.

Levofloxacin is a fluoroquinolone antibiotic used to treat infections. Missed doses of antibiotics delay initiation of timely treatment of infection that can lead to patients becoming more unwell and staying in hospital longer.

Levothyroxine is a thyroid hormone replacement used to treat hypothyroidism. When given to someone who doesn't need it, adverse effects can occur, including high heart rate or palpitations, vomiting, agitation or confusion.

Please bring this newsletter to the attention of all staff

Advice for staff:

- Say medication names aloud to help distinguish read-alike medicine names.
- Confirm the medicine indication, especially if the medicine is unfamiliar or unexpected for the condition. If you are unsure, seek advice.
- Use safety features of the electronic prescribing system to support safe medicines use. These may include:
  - type at least 5 letters of the medicine name to reduce displayed options in drop-down menus ("levof")
  - selective capitalisation to highlight differences and support selection (e.g. levoFLOXacin and LEVothyroxine).

Unexpected changes in medicine presentation: Risk from confusing medicines in similar containers

Trusts occasionally need to supply different medicine products to ensure stock is available during supply chain changes or disruptions including national shortages. These medicines may be supplied in a different presentation than the presentation that staff are familiar with. Further, the new medicines presentation may be similar to other medicines already in use, introducing a risk of containers **looking alike**. Changes in medicine presentation and containers increase the risk of **selection errors**.

For example, recent paracetamol presentations include:



Glass vial



Plastic bottle

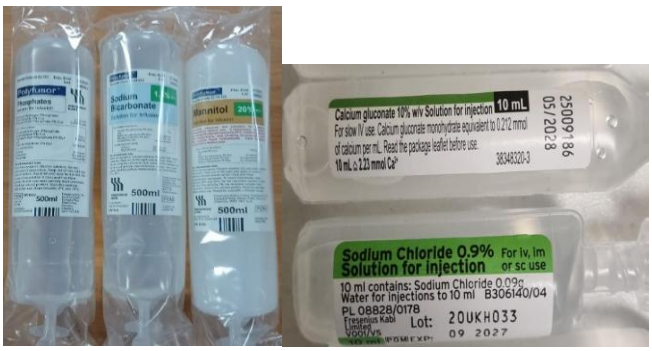


Plastic bag

Errors have occurred in other hospitals due to miss-selection of levobupivacaine epidural bags and paracetamol bags, both supplied in a silver overwrap.



Other examples of look-alike container errors are:



Polyfusors Plastic ampoules

Advice for staff:

- Apply the **5 rights of medicines administration:** Check the right patient, drug, dose, route, time or rate.
- Do not rely on container or label appearance.
- Always read the medicine name from the bag, vial or ampoule label (not the outer pack).
- Ensure medicines are stored separately and in their original packs.
- Use bar-code scanning if available. If the scanner gives an error message, check again - consider you may have selected the wrong product!

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