National Patient Safety Alert

BRITISH ASSOCIATION OF DERMATOLOGISTS HEALTHY SKIN FOR ALL

NHS

Inadvertent oral administration of potassium permanganate

Date of issue:	5 April 2022	Reference no:	NatPSA/2022/003/NHSPS

This alert is for action by: All acute trusts, trusts providing community services, mental health trusts and primary care, including general practice and community pharmacy.

This is a safety critical and complex National Patient Safety Alert. Implementation should be co-ordinated by an executive lead (or equivalent role in organisations without executive boards) and supported by clinical leaders in dermatology, nursing, and pharmacy.

Explanation of identified safety issue:

Potassium permanganate is routinely used in the NHS as a dilute solution to treat weeping and blistering skin conditions, such as acute weeping/ infected eczema and leg ulcers. It is not licensed as a medicine.

Supplied in concentrated forms, either as a 'tablet' or a solution, it requires dilution before it is used as a soak or in the bath. These concentrated forms resemble an oral tablet or juice drink and if ingested are highly toxic; causing rapid swelling and bleeding of the lips and tongue, gross oropharyngeal oedema, local tissue necrosis, stridor, and gastrointestinal ulceration. Ingestion can be fatal due to gastrointestinal haemorrhage, acute respiratory distress syndrome and/or multiorgan failure.[1] Even dilute solutions can be toxic if swallowed.

A Patient Safety Alert issued in 2014[2] highlighted incidents where patients had inadvertently ingested the concentrated form, and the risks in relation to terminology and presenting tablets or solution in receptacles that imply they are for oral ingestion, such as plastic cups or jugs.

A review of the National Reporting and Learning System over a two-year period identified that incidents of ingestion are still occurring. One report described an older patient dying from aspiration pneumonia and extensive laryngeal swelling after ingesting potassium permanganate tablets left by her bedside. Review of the other 34 incidents identified key themes:

- healthcare staff administering potassium permanganate orally
- patients taking potassium permanganate orally at home, or when left on a bedside locker
- potassium permanganate incorrectly prescribed as oral medication.

The British Association of Dermatologists (BAD) 'Recommendations to minimise risk of harm from potassium permanganate soaks',[3] includes advice on formulary management, prescribing, dispensing, storage, preparation and use, and waste.

Actions required

Actions to be completed by 04 Oct 2022

1. Review the overall use of potassium permanganate at trust/area drug and therapeutics committee to consider if the benefit outweighs the risk.[4]

2. Unless eliminating the use within the trust/locality, ensure procedures/guidelines for use of potassium permanganate align with all BAD recommendations,[3] including:

a) **In primary care:**
- patients are not on repeat prescriptions for potassium permanganate NOTE A
- prescriptions include clear instructions to dilute before use
- dispensing label includes the warning 'HARMFUL IF SWALLOWED'.

b) **In secondary care:**
- remove all stock supply (except for use within outpatient departments) and supply on a named patient basis only
- potassium permanganate is prescribed as 'potassium permanganate 0.01% topical solution' and the dispensing label must include the warning 'HARMFUL IF SWALLOWED'
- potassium permanganate is not stored with medicines for oral/internal use, including the ward drug trolley; dilution should occur away from the patient, and neither the concentrated form or the diluted form, should be left near the patient.

c) **All settings:**
- prescriptions are only issued by an appropriate prescriber – see recommendations
- if potassium permanganate is to be used in a patient's home, a risk assessment must be undertaken before prescribing
- all patients must be supplied with a patient information leaflet.[5]

Additional information:

Notes

A. A retrospective risk assessment of primary care patients is not necessary if the action to eliminate repeat prescriptions is taken, but will be necessary when a new prescription is required.
B. Discussions are ongoing with manufacturers to improve labelling and packaging of potassium permanganate products and remove the use of the term 'tablet'.
C. The use of potassium permanganate in wound care has been identified as a strategic research need by the national patient safety team.[6]

Patient safety incident data

The NRLS was searched for incidents reported to have occurred on or after 01 January 2019 and uploaded to the NRLS by 29 December 2021 containing reference to 'potassium permanganate' or related terms. All incidents were reviewed; 35 identified incidents related to actual or potential inadvertent administration (reference PSI410). Of these, 15 reported staff had inadvertently administered potassium permanganate orally, while another nine reported patients taking potassium permanganate orally; 11 were near misses relating to accidental ingestion.

One report described an older patient who, following oral ingestion of potassium permanganate, developed aspiration pneumonia, black staining of her epiglottis and extensive laryngeal swelling, and died three days later. Another incident reported a patient who swallowed potassium permanganate at home; she spoke little English and did not understand the instructions on how to use them and developed a stomach ulcer and gastrointestinal bleeding requiring inpatient treatment.

Other issues identified included:

- incorrectly prescribed as oral route
- incorrectly dispensed/labelled
- incorrectly stored.

Most of the reports (29) relate to incidents in hospital, but five related to incidents occurring in the patient's home or care home.

References

1. National Poisons Information Service. Toxbase: Potassium permanganate monograph. www.toxbase.org
2. NHS England. Patient Safety Alert: Risk of death or serious harm from accidental ingestion of potassium permanganate preparations. 22 December 2014. www.england.nhs.uk/wp-content/uploads/2014/12/psa-potass-prmangant.pdf
3. British Association of Dermatologists. Recommendations to minimise risk of harm from potassium permanganate soaks. January 2022. https://www.bad.org.uk/healthcare-professionals/clinical-standards/
4. Specialist Pharmacy Service. Using potassium permanganate for skin conditions or wound care. November 2021 https://www.sps.nhs.uk/articles/using-potassium-permanganate-for-skin-conditions-or-wound-care/
5. British Association of Dermatologists. Patient information leaflet: Potassium permanganate. https://www.bad.org.uk/patient-information-leaflets/potassium-permanganate-solution-soaks
6. NHS England and NHS Improvement. National patient safety strategic research needs 2022/23. December 2021. https://www.england.nhs.uk/patient-safety/the-nhs-patient-safety-strategy/#safety-practices

Stakeholder engagement

- British Association of Dermatologists
- National Patient Safety Response Advisory Panel (for a list of members and organisations represented on the panel see https://www.england.nhs.uk/patient-safety/patient-safety-alerts)

Advice for Central Alerting System (CAS) officers and risk managers

This is a safety critical and complex National Patient Safety Alert (NatPSA); applicable to mental health trusts as this treatment may be used in this setting. In response to CHT/2019/001 your organisation should have developed new processes to ensure appropriate oversight and co-ordination of all NatPSAs. CAS officers should send this Alert to the executive lead nominated in their new process to co-ordinate implementation of safety critical and complex NatPSAs, copying in the leads identified on page 1.