



Patient Safety Alert

Stage One: Warning

Risk of death or serious harm from accidental ingestion of potassium permanganate preparations

22 December 2014

Alert reference number: NHS/PSA/W/2014/18

Alert stage: One - Warning

Potassium permanganate is used in wound care because of its antiseptic and antimicrobial properties. It is available as a solution for further dilution and as a tablet preparation, which is dissolved in water and further diluted to a specified concentration. It is for external use only and can be fatal if ingested orally due to local inflammatory reactions that block the airways or cause perforations of the gastrointestinal tract. It can also cause death through toxicity and organ failure[1,2]. NHS England has been informed of an incident where a patient died after ingesting potassium permanganate. Whilst this death remains under investigation, analysis of the National Reporting and Learning System (NRLS) has identified 43 incidents in the past three and a half years where potassium permanganate tablets have been ingested orally by patients. Although none of these incidents were reported as causing severe harm or death, any later effect on the patient was not always clearly described.

An example incident reads:

Patient prescribed potassium permanganate for soaking of legs, tablet was diluted, but I did not communicate to my fellow colleague that it was not for oral consumption. Patient drank approximately 120-150mls of diluted preparation.





Although packaging clearly states potassium permanganate should not be swallowed, it is very unusual for a topical preparation to come in a tablet form, and therefore some staff, patients and carers may accidentally treat it as an oral preparation. The risk of error appears to increase when the term 'potassium permanganate tablets' is used rather than a term such as 'potassium permanganate soak'. The risk of accidental ingestion also increased where receptacles that implied oral ingestion were used, such as plastic cups or jugs. Other incidents involved potassium permanganate being directly dispensed to vulnerable patients in their own homes and the patient misunderstanding that the tablets were not for oral ingestion. Where accidental ingestion had occurred, staff did not always appear aware of the need to treat this as a medical emergency.

Analysis of the NRLS reports suggested that arrangements for supply, storage and preparation varied greatly among healthcare providers. Barriers expected for a product subject to Control of Substances Hazardous to Health[3] include; separate storage, additional hazard labelling, and issue only to staff and patients who have been educated to understand its safe use.

Actions

Who: All providers of NHS funded care

When: To commence immediately and be completed by 22 January 2015

-  Identify if potassium permanganate preparations are used in your organisation, and if accidental ingestion has or could occur.
-  Consider if immediate action needs to be taken locally, and ensure that an action plan is underway if required, to reduce the risk of further incidents occurring.
-  Circulate this alert to all relevant medical, nursing, pharmacy and other staff.
-  Share any learning from local investigations or locally developed good practice resources by emailing patientsafety.enquiries@nhs.net.

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Technical notes

NRLS search dates and terms

NRLS searched between dates: 1 January 2011 to 4 August 2014.

Search terms:

Medication incidents only

'potassium permanganate' OR 'permang' OR 'permitab'

Of 43 incidents describing oral ingestion, 9 were reported as moderate harm; 9 as low harm and 25 as no harm, but any later effect on the patient was not always clearly described.

References

1. Young RJ, Critchley JA, Young KK et al. Fatal acute hepatorenal failure following potassium permanganate ingestion. *Hum Exp Toxicol* 1996;15(3):259-61.
2. Lifshitz M, Shahak E, Sofer S. Fatal potassium permanganate intoxication in an infant. *J Toxicol Clin Toxicol* 1999; 37: 801-802.
3. Control of Substances Hazardous to Health COSHH regulations. www.safety-adviser.co.uk/COSHH (potassium permanganate)

Stakeholder engagement

British Association of Dermatology
Medical Patient Safety Expert Group