Patient Safety Notice

PSN061 / November 2021

GIG CYMRU NHS WALES

Llywodraeth Cymru
Welsh Government

Reducing the risk of patient harm – standardised strength of phenobarbital oral liquid

To: All NHS Wales Chief Executives, medical directors, directors of nursing, chief pharmacists, medication safety officers, general practitioners, community nurses, community pharmacists, Digital Health and Care Wales and registered providers of independent hospitals, clinics and medical agencies.

Phenobarbital is an anti-epileptic drug used to treat a variety of seizure types in both adults and children.[1] It has a narrow therapeutic index and patients must receive the correct dose to prevent adverse effects and/or death from loss of seizure control or toxicity. Phenobarbital is available in a range of different strengths and dosage forms.[1] Some oral liquid preparations of phenobarbital are not considered appropriate for children because of the alcohol content. The Royal College of Paediatrics and Child Health (RCPCH) and Neonatal and Paediatric Pharmacists Group (NPPG) guidance, endorsed by the All Wales Medicines Strategy Group, recommend that the unlicensed alcohol-free phenobarbital 50mg/5mL oral liquid is given to children.[2,3]

Incidents of patient harm have been reported from the inadvertent interchanging of different strengths and preparations of phenobarbital oral liquid during prescribing and dispensing. Examples of medication errors resulting in patient harm include:

> "Patient admitted to hospital for investigation of drowsiness and lethargy. Symptoms attributed to an overdose of phenobarbital resulting from a dispensing error involving the incorrect supply of phenobarbital 50mg/5mL oral solution instead of the prescribed phenobarbital 15mg/5mL oral liquid."

> "Child admitted to hospital experiencing seizures. Patient had previously been discharged from hospital on phenobarbital 50mg/5mL oral solution 9mg (0.9mL) twice daily. General practice prescribing system had not been updated correctly and a prescription was issued for phenobarbital 15mg/5mL oral solution 0.9mL twice daily, resulting in a patient receiving an underdose of phenobarbital and also being inadvertently exposed to alcohol."

Factors contributing to these errors included the availability of multiple strengths of phenobarbital oral liquid for selection on electronic prescribing systems, pharmacy computer software and dispensary shelves. Other contributory factors were lack of staff knowledge that phenobarbital 50mg/5mL oral liquid should be used in children; and the accuracy and timeliness of medicines reconciliation processes at the primary/secondary care interface.

Actions

Who: All organisations providing NHS-funded care.

When: Actions to be completed as soon as possible and no later than February 2022

1. Disseminate this notice to all staff responsible for the care of patients prescribed, dispensed/supplied and administered phenobarbital oral liquid.
2. Consider if immediate action needs to be taken locally and ensure that an action plan is underway, if required, to ensure compliance with this notice.
3. All patients newly initiated on phenobarbital oral liquid should be prescribed and supplied the alcohol-free phenobarbital 50mg/5mL oral liquid.
4. Alcohol-free phenobarbital 50mg/5mL oral liquid must be given to all paediatric patients requiring the treatment.

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Adopting a standardised strength of phenobarbital oral solution for prescribing and supply across Wales can reduce the risk of medication errors. Review of national prescribing data[4] shows that the majority of patients across Wales are prescribed phenobarbital 50mg/5mL oral liquid, with the prescribing of the lower strength product limited to a few patients in each Health Board. Therefore, adopting phenobarbital 50mg/5mL oral solution as the standardised strength product is advocated and endorsed by clinical networks across Wales. Prescribers initiating phenobarbital oral solution, whether in adults or children, should prescribe phenobarbital 50mg/5mL oral solution and all children should be given the alcohol-free preparation. Although phenobarbital 50mg/5mL is an unlicensed medicine, a clinical risk assessment of safety and efficacy justifies its use because:

- It meets an adult or paediatric patient's need without unnecessarily exposing them to risks from excipients.
- Its historic and routine use in paediatrics provides an evidence base to demonstrate its efficacy and safety.
- Reduces the risk of patient harm from prescribing, dispensing and administration errors caused by mis-selection of the incorrect product strength.
- Supplies are readily available from reputable specials manufacturers with certificates of analysis/conformity.

Prescribers and pharmacists supplying the unlicensed phenobarbital 50mg/5ml, in accordance with this safety notice, are assured they are acting in accordance with professional guidance on the use of unlicensed medicines.[5,6]

The Medicines and Healthcare products Regulatory Agency classifies phenobarbital as a category 1 anti-epileptic drug and advises that patients are maintained on a specific manufacturer's product to reduce the risk of patient harm from adverse effects and/or loss of seizure control.[7] Different formulations of oral preparations of phenobarbital can have different characteristics which can affect the extent and rate the drug is absorbed by the body and exerts its effects (bioavailability). Consequently, patients that are stabilised on phenobarbital 15mg/5mL for epilepsy should continue to receive this preparation if clinically necessary. If there is no clinical need for a specific manufacturer's product and it is clinically safe, specialist prescribers can discuss and only with the agreement of the patient switch to phenobarbital 50mg/5mL oral liquid.

5. The use of phenobarbital 15mg/5mL oral liquid in existing patients should be reviewed. If there is no clinical need for the patient to remain on phenobarbital 15mg/5mL oral liquid, specialist prescribers can consider switching to the use of phenobarbital 50mg/5mL oral liquid but only after discussing the risks and benefits with the patient and/or relative and obtaining their agreement.
6. Organisations must review their systems, processes and digital software, implementing appropriate strategies to mitigate the risk of selecting the incorrect preparation of phenobarbital (strength or preparation) and ensure accurate and timely transfer of information across primary and secondary care.
7. Organisations must assess the need to keep different strengths of phenobarbital oral liquid as stock in clinical areas. Where different strengths of phenobarbital oral liquid are stocked, the different strength products must be clearly segregated to minimise the risk of selection errors.

Share any learning from local investigations or locally developed good practice resources by emailing: ImprovingPatientSafety@gov.wales

Organisations should review and rationalise the range of products kept in pharmacies and clinical areas to minimise drug selection errors during dispensing and administration. Organisations must comply with PSN055 The Safe Storage of Medicines – Cupboards[8] including segregating the storage of different dosage forms using distinct storage facilities where possible. Physical barriers (e.g. dividers) should be used to segregate different strength products on storage shelves. Organisations are also advised to review systems and processes used to support medicines management and implement strategies to reduce the risk of selecting the incorrect product, strength or formulation where possible.
Primary and secondary care organisations are required to adhere to the National Institute for Health and Care Excellence (NICE) quality standards for medicines optimisation:

> "Quality statement 4: Inpatients in an acute setting have a reconciled list of medicines within 24 hours of admission.
>
> Quality statement 5: People discharged from a care setting have a reconciled list of medicines in their GP record within one week of the GP practice receiving the information and before a prescription or new supply of medicines is issued."[9]

NICE place responsibility for undertaking medicines reconciliation on healthcare professionals (primary care: general practitioners; secondary care: doctors, nurses, pharmacists, trained pharmacy technicians).[9] Health and care providers should ensure systems are in place to send comprehensive and accurate information to general practices in a timely manner so that the information is received within a week of discharge.[6] Health and care providers should work collaboratively with digital system providers, that support communication across the primary-secondary care interface, to ensure timely delivery of clinical information such as discharge advice letters.

Additional information:

References

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Stakeholder engagement

This notice was developed in consultation with all Wales Medication Safety Network, Royal College of Paediatrics and Child Health (RCPCH) in Wales, all Wales network of paediatric pharmacists, adult and paediatric neurology networks, all Wales Medicines Information Operational Group and the All Wales Therapeutics and Toxicology Centre.

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Technical Notes

General practice prescribing data for phenobarbital oral liquid 15mg/5mL and phenobarbital oral liquid 50mg/5mL (January – December 2020) was provided by the All Wales Therapeutics and Toxicology Centre and was taken from the Comparative Analysis System for Prescribing Audit (CASPA) produced by the NHS Wales Shared Services Partnership. The graph shows the average number of each product strength prescribed by general practices according to Health Boards across Wales. Based on an average adult dose of phenobarbital 60mg once daily and a bottle size of 500mLs, it is estimated that health boards may have two patients receiving phenobarbital 15mg/5mL.