High-Risk Medicine Standard: HYDROmorphone
PRINTABLE STANDARD

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Hydromorphone is a potent opioid analgesic frequently used to treat moderate to severe, acute or chronic pain. Hydromorphone is 5 to 7 times more potent than morphine. Due to its high potency and availability in a variety of strengths and formulations, errors with this medicine often occur and may result in serious adverse patient outcomes.

Errors involving hydromorphone include:

- confusion between morphine and hydromorphone, including fatal incidents involving inadvertent administration of hydromorphone instead of morphine
- dose calculation and administration errors involving the high-concentration injectable hydromorphone
- prescribing and administering incorrect formulations. For example, selecting immediate release instead of controlled release formulation.

This standard outlines the minimum actions required to mitigate risks associated with hydromorphone use. This standard does not contain clinical guidance on hydromorphone use. This standard is to be read in conjunction with:

- Clinical Excellence Commission High-Risk Medicine Standard: Opioid analgesics
- Australian Commission on Safety and Quality in Health Care Opioid Analgesic Stewardship in Acute Pain Clinical Care Standard (2022).

Minimum requirements for clinical protocols

The Drug and Therapeutics Committee must approve any clinical protocols relating to hydromorphone and ensure inclusion of the following, at a minimum:

- a statement that hydromorphone is 5 to 7 times more potent than morphine
- a statement that parenteral and oral forms of hydromorphone are not equivalent/interchangeable without appropriate dose modification
- a warning statement that initiation of hydromorphone in opioid naïve patients is hazardous and rarely warranted, and that specialist advice is required
- a restriction on prescribers permitted to initiate hydromorphone. Hydromorphone initiation is to be restricted to those prescribers with the appropriate qualifications and expertise
- reduced starting doses for patients with risk factors such as asthma, obstructive sleep apnoea or those receiving other medications that can potentiate the effects of hydromorphone

- a process for confirming all hydromorphone orders (new and continuing) for appropriateness (including dose and route) and documenting confirmation in the patient's health record
- a schedule for frequency and type of clinical observations for all patients receiving hydromorphone, with:
    - a mechanism for immediate escalation of care if respiratory depression or high sedation score is evident
    - the frequency of clinical observations required for patients newly prescribed hydromorphone, or when a hydromorphone dose has been increased
- recommended opioid conversion tools to be used for converting opioid doses to or from hydromorphone
- instructions when naloxone is to be prescribed including for take home use
- requirements for patient and/or carer education (see *Patient information/education* section).

Governance requirements

Adherence to the requirements specified in this standard is to be monitored by governance committees (for example, Drug and Therapeutics Committee) and service managers (including, but not limited to, Directors of Pharmacy and Nurse Unit Managers). An implementation checklist is available and can be used by facilities and individual units to determine compliance with these requirements.

Prescribing

- Hydromorphone initiation is to be limited to patients for whom other opioid analgesics are inappropriate or not tolerated.
- Medical teams responsible for patients continuing their regular hydromorphone are to consider the indication, appropriateness and refer to a relevant specialty for review if therapeutic concerns are identified.
- Initial prescribing of hydromorphone is to be restricted to clinicians with appropriate qualifications and expertise as outlined in Drug and Therapeutics Committee approved protocols.
- The dose, frequency and formulation of the patient's regular hydromorphone is to be confirmed, with a reliable source such as the patient's community pharmacist, general practitioner, medical specialist or carer and documented in the patient's health record prior to prescribing as continuing treatment in hospital where possible.

- Where Electronic Medication Management systems are in use, mechanisms are to be built to prevent selection errors at the point of prescribing.
- Tall Man lettering is to be used when prescribing hydromorphone to reduce the risk of confusion with morphine. For example, HYDROmorphone.
- Opioid conversion tools are to be used when converting opioid doses to or from hydromorphone. For example, the Opioid Calculator developed by the Faculty of Pain Medicine, Australian and New Zealand College of Anaesthetists (FPM ANZCA) or evIQ Opioid Conversion Calculator.
- Identify if patients require the Take Home Naloxone intervention using the eligibility criteria in accordance with the NSW Health Policy Directive *Take Home Naloxone* (PD2020_027).

Storage and supply

- Hydromorphone is to be stored in a separate Schedule 8 medication storage unit from morphine (where possible). In patient care areas where there is only one Schedule 8 medication storage unit, hydromorphone is to be separated from morphine by storing these medicines on different shelves and/or by placing all hydromorphone medicines in a distinctive coloured bag or container.
- An additional sticker using Tall Man lettering stating 'HYDROmorphone' is to be applied to all inpatient hydromorphone packets and bottles. The sticker is not to obscure original packet or bottle labelling.
- The following precautions are to be taken when supplying hydromorphone to patient care areas:
    - Hydromorphone is not to be routinely stored in patient care areas where use is infrequent. In these circumstances, the required product is to be individually dispensed and returned to pharmacy at the end of the patient care episode. Individually dispensed hydromorphone is to be used only for the patient to whom it was dispensed.
    - High-concentration formulations of injectable hydromorphone (10 mg per mL) are not to routinely be stored in patient care areas outside of palliative care units. In circumstances when high-concentrations are required, the product is to be individually dispensed per patient, and removed at the end of the patient care episode.
- Patient care areas are to be checked at least weekly to identify and remove inappropriately stocked hydromorphone products.
- Naloxone injection is to be available for reversal in patient care areas wherever hydromorphone is used.

Administration

- An independent second person check is to be employed when administering hydromorphone. The second person check processes are outlined in the NSW Health Policy Directive Medication Handling (PD2022_032) including circumstances where a second person check is not mandated (for example, when a medicine is administered by an authorised prescriber).

Medication review

- Where possible, a medication review is to be completed:
    - prior to administration of the first inpatient dose (if commenced as a new medication) with specific attention on the appropriateness of the agent for the indication as well as careful consideration of the dose prescribed in view of the patient's comorbidities and other medicines prescribed, particularly other opioid analgesia or sedative agents
    - within 24 hours of admission (if continuation of therapy).

Patient information/education

- Where possible, patients and/or their carers who are discharged home on hydromorphone are to receive confirmation of their current hydromorphone regimen at the time of discharge. If patients have been initiated on new hydromorphone therapy, the patient and/or their carer are to be provided with relevant education and written information regarding hydromorphone with particular attention to adverse-effects and how they are to be managed.
- Professional Health Care Interpreters are to be utilised for patients and/or carers who are not fluent in English or who have hearing or visual impairments.
- Where possible, for inpatients prescribed hydromorphone, the patient's family and/or carers are to be advised to alert the patient's nurse, doctor or other healthcare professional if they have concerns regarding a change in the patients' condition including an unexpected decrease in their level of consciousness or other adverse effects associated with hydromorphone. Refer to the CEC patient factsheet on Managing side effects of opioid analgesia in hospital and REACH resources for more information.
- Patients and/or carers who are supplied with naloxone on discharge are to be provided with education on responding to an opioid overdose and instructions on using the medicine. Refer to Australian Government webpage How to administer naloxone for more information.

Staff education

- Local clinical protocols are to address any specific training, qualifications, skills or competencies required to prescribe or administer hydromorphone.
- Clinicians (where relevant to their scope of practice) are to receive education on the safe use of hydromorphone when working in clinical areas where hydromorphone is used. A Health Education and Training Institute eLearning module 'Safe use of HYDROmorphone' (Course code: 199776392) is available for this purpose.

References

- Australian Medicines Handbook. Opioid analgesics. [Internet]. Available from: https://amhonline.amh.net.au.acs.hcn.com.au/chapters/analgesics/drugs-pain-relief/opioid-analgesics. Updated July 2023. Accessed November 24, 2023.
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