quality safe use of medicines

Medication Alert

MORPHINE!

Alert 7 October 2008

For the attention of: Chief Executive Officers
For action by: Identified individual in each DHB, PHO Clinical Leaders, Rest Home Organisations
For information to: Directors of Nursing, Quality and Risk Managers, Chief Medical Officers, Pharmacy Council, Chief Pharmacists

Purpose of this alert

To highlight risks for patients on morphine and to suggest improvements in practice in both primary and secondary care environments

Background to this Safe Use of Medicines Alert

Morphine is considered internationally to be a "high risk" medicine. It is commonly cited in medication error reporting and can significantly depress respiratory function particularly in the opioid naïve patient.

The major risks are:

- Packaging of different strengths of oral or injectable morphine that look alike and are poorly differentiated, leading to selection error
- Insufficient training and understanding on the part of healthcare staff of the risks and precautions required when prescribing, dispensing and administering higher doses of morphine

Action Points—Storage

- **Reassess and restrict the range of strengths and formulations of morphine that are routinely stocked in all locations in both primary and secondary care**
- **Use separate storage locations within safes, such as different shelves for products that have similar packaging but are different strengths**
- **Ensure that naloxone injection, an antidote to opiate induced respiratory depression, is available in all clinical locations where morphine is stored or administered**

Action Points—Therapeutic

- **Institute ongoing training programmes for healthcare staff on the safe prescribing of morphine, including the different strengths and preparations available**
- **Review therapeutic guidelines for the use of morphine injectable products for patients, including the post-administration observation of patients who have not previously received doses of opioids**
- **Educate the patient and carer about the different strengths of morphine preparations available**

Further Information on the Action Points

1. **Assess the risks and have procedures in place for safely prescribing, dispensing, labelling, storing, preparing and administering morphine preparations**

- Raise awareness of the similarities in packaging and the potential for confusion between products of different strengths or release characteristics
- Audit controlled drug cupboards regularly to maintain storage standards
- Consider the introduction of larger safes/cupboards or automated medicine distribution systems (e.g. Pyxis)
- Within the hospital setting restrict stock items and quantities for each unit and issue additional items on a named patient basis only
- Standardise on one strength of morphine oral solution (e.g.1mg/mL) for routine use with different concentrations issued on a named patient basis only
- Encourage prescribers to prescribe the oral solution as milligram (mg) of morphine, not as millilitres (mL) of solution
- Encourage prescribers when prescribing extended release morphine products to add the brand name e.g. morphine sustained release tablets (*m*-Eslon®)

2. Institute ongoing training programmes for healthcare staff on the safe prescribing of morphine, including the different preparations and strengths available

- Oral and intravenous / subcutaneous doses of morphine are not interchangeable, and need to be reduced in a 2:1 ratio i.e. 10mg oral morphine = 5mg of intravenous or subcutaneous morphine
- The active metabolites of morphine are excreted by the kidneys, with a high risk of accumulation and toxicity in patients with renal impairment (GFR less than 50mL/minute). Halve the dose, extend the dosing interval, or consider an alternative analgesic
- Patients with significant liver dysfunction, particularly those with cirrhotic disease, may experience morphine toxicity at lower doses than those patients with normal liver function. Consider an alternative analgesic
- The elderly are likely to have diminished renal function and are at particular risk of adverse effects and should be monitored closely. In addition, the elderly are more susceptible to the CNS depressive effects of morphine
- As part of training emphasis should be given to appropriate starting doses and dose titration as well as safe systems for product selection, preparation, administration and monitoring

3. Morphine is available in a number of oral preparations that have different release characteristics that can be easily confused, leading to adverse events

Product	Release Characteristic	Brand Name	Strengths
Morphine Hydrochloride oral solution	Immediate Release	RA-Morph®	1mg/mL, 2mg/mL, 5mg/mL, 10mg/mL
Morphine sulphate tablet	Immediate Release	Sevredol®	10mg, 20mg
Morphine sulphate capsule	Sustained Release	m-Eslon®	10mg, 30mg, 60mg, 100mg, 200mg
Morphine sulphate tablet	Long Acting/Controlled Release	LA-Morph®	10mg, 30mg, 60mg, 100mg

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These recommendations are based on a review of the currently available information in order to assist practitioners. The recommendations are general guidelines only and are not intended to be a substitute for individual clinical decision making in specific cases

If you require any further information or wish to provide feedback on this alert, please go to www.safeuseofmedicines.co.nz