

Key points

Opioids

- The main drug is morphine, which is a full agonist at μ -receptors.
- The effects of morphine include:
 - analgesia;
 - relief of left ventricular failure;
 - miosis (pupillary constriction);
 - suppression of cough ('antitussive' effect);
 - constipation;
 - nausea/vomiting;
 - liberation of histamine (pruritus, bronchospasm);
 - addiction;
 - tolerance;
 - withdrawal symptoms following chronic use.
- Diamorphine ('heroin'):
 - is metabolized rapidly to morphine;
 - gains access to the central nervous system (CNS) more rapidly than morphine (when given i.v. or snorted);
 - for this reason gives a rapid 'buzz';
 - may therefore have an even higher potential for abuse than morphine;
 - is more soluble than morphine.
- Codeine and dihydrocodeine are:
 - weak opioid prodrugs;
 - slowly metabolized to morphine;
 - used in combination with paracetamol for moderate pain;
 - used for diarrhoea or as antitussives.
- Pethidine:
 - is a strong synthetic opioid;
 - metabolized to normeperidine which can cause seizures;
 - does not inhibit uterine contraction;
 - is widely used in obstetrics;
 - can cause respiratory depression in neonates;
 - is less liable than morphine to cause bronchial constriction;
 - does not cause miosis;
 - has potential for abuse.
- Buprenorphine and dextropropoxyphene are partial agonists.
 - Buprenorphine is used sublingually in severe chronic pain.
 - Dextropropoxyphene is combined with paracetamol for moderately severe chronic pain. This combination is no more effective than paracetamol alone for acute pain and is very dangerous in overdose. The March 2007 British National Formulary states 'co-proxamol (dextropropoxyphene + paracetamol) is to be withdrawn from the market and the CSM has advised that co-proxamol treatment should *no longer* (their emphasis) be prescribed'.
- Opioid effects are antagonized competitively by naloxone: very large doses are needed to reverse the effects of partial opiate agonists, e.g. buprenorphine, pentazocine.

Case history

A 55-year-old retired naval officer presents to the Accident and Emergency Department with sudden onset of very severe back pain. A chest x-ray reveals a mass, and plain spine films shows a crush fracture. He is admitted at 9 a.m. for further management and investigation. On examination he is pale, sweaty and distressed. The doctor on call prescribes morphine 10 mg subcutaneously, four-hourly as needed, and the pain responds well to the first dose, following which the patient falls into a light sleep.

That evening his wife, scarcely able to contain her anger, approaches the consultant on the Firm's round and strongly advocates that her husband be given some more analgesic.

Comment

Communication is key in managing pain. There are often difficulties when, as in the present case, the diagnosis is probable but not confirmed, and when the patient is admitted to a general ward which may be short of nursing staff. The Senior House Officer was concerned not to cause respiratory depression, so did not prescribe regular analgesia, but unfortunately neither medical nor nursing staff realized that the patient had awoken with recurrent severe pain. He had not himself asked for additional analgesia (which was prescribed) because his personality traits would lead him to lie quietly and 'suffer in silence'. The good initial response suggests that his pain will respond well to regular oral morphine, and this indeed proved to be the case. A subsequent biopsy confirmed squamous-cell carcinoma, and a bone scan demonstrated multiple metastases, one of which had led to a crush fracture of a vertebral body visible on plain x-ray. A non-steroidal drug (e.g. ibuprofen or ketorolac) reduced his immediate requirement for morphine, and radiotherapy resolved his back pain completely. Morphine was discontinued. He remained pain-free at home for the next four months and was then found dead in bed by his wife. Autopsy was not performed. One of several possibilities is that he died from pulmonary embolism.

FURTHER READING

- Ballantyne JC, Mao JR. Opioid therapy for chronic pain. *New England Journal of Medicine* 2003; **349**: 1943–53.
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- Holdgate A, Pollock T. Systematic review of the relative efficacy of non-steroidal anti-inflammatory drugs and opioids in the treatment of acute renal colic. *British Medical Journal* 2004; **328**: 1401–4.
- McMahon S, Koltzenburg M. *Wall and Melzack's textbook of pain*, 5th edn. Edinburgh: Churchill Livingstone, 2005.