

MORPHINE

For additional information see *Opioid analgesics* p. 48

For drug interactions see *Opioids* p. A-50, *Morphine* p. A-51

Indications

Marketed

Moderate-to-severe acute or chronic pain

Opioid adjunct during general anaesthesia

Accepted

Acute pulmonary oedema, adjunct

Relief of severe dyspnoea, eg lung cancer (seek specialist advice)

Specific considerations

Renal impairment

Morphine's active metabolites have a longer half-life than morphine and accumulate in the elderly and in renal impairment; may cause respiratory depression and delirium.

Moderate, chronic use requires lower doses; take into account adverse effects and need for adequate analgesia.

Severe, reduce dose; avoid chronic use due to accumulation of active metabolites.

Hepatic impairment

Severe, avoid use; may cause excessive sedation or coma.

Dosage

Titrate dose to patient needs. In acute pain and palliative care there is no maximum dose; only adverse effects limit the morphine dose. In chronic non-cancer pain, involve a specialist pain team in assessing and managing the patient.

The following are approximate dose ranges for patients starting on opioids. Doses will vary widely depending on the indication, eg acute or chronic pain, and previous analgesic requirements.

Monitor cardiorespiratory status of patient closely, particularly with continuous infusion or repeated parenteral doses in opioid-naïve individuals.

Acute pain, adult**IV, initial dose**

0.5–2 mg repeated every 3–5 minutes. This interval may not represent the true time to peak effect (which may be up to 15 minutes). Titrate dose according to response, respiratory rate and sedation score. Use the lower dose in patients >70 years of age.

SC/IM

Suggested doses are for opioid-naïve patients and may vary according to the clinical situation; start at lower end of dose range; titrate subsequent doses to the individual's need.

20–39 years, 7.5–12.5 mg every 2 hours as required.

40–59 years, 5–10 mg every 2 hours as required.

60–69 years, 2.5–7.5 mg every 2 hours as required.

70–85 years, 2.5–5 mg every 2 hours as required.

>85 years, 2–3 mg every 2 hours as required.

Acute pain, child**Neonate**

IV infusion, 10–20 micrograms/kg/hour.

Infant, child

IV, 50–100 micrograms/kg/dose every 4 hours.

IV infusion, 10–40 micrograms/kg/hour.

Patient-controlled analgesia

According to hospital or specialist unit protocols.

Chronic cancer pain, adult**Initial dosing**

Initial dose depends on previous opioid exposure:

- if opioid-naïve, start with 2.5–5 mg oral liquid every 4 hours
- if previously on opioids, consider equianalgesic dose of morphine (see Table 3–3 Opioid comparative information p. 50).

Oral liquid, 2.5–20 mg every 4 hours. Initial dose will depend on previous analgesia. Titrate doses to effect and calculate 24-hour morphine requirement.

Maintenance dosing

Convert the 24-hour dose of oral liquid into an equivalent dose of a controlled release product for maintenance treatment.

Oral controlled release tablet or controlled release liquid, MS Contin[®], total daily dose as determined for oral liquid, but give half total daily dose every 12 hours.

Oral controlled release capsule, total daily dose as determined for oral liquid; Kapanol[®], half total daily dose may be given every 12 hours or total daily dose every 24 hours; MS Mono[®], total daily dose every 24 hours.

SC infusion, calculate 24-hour oral dose of morphine and give one-third by SC infusion over 24 hours.

Chronic non-cancer pain, adult

Involve a specialist pain team in managing these patients. Start with the equivalent of controlled release morphine 5–30 mg twice daily and adjust dose according to the response after 1 week or less. Use regular (by the clock) dosing. In general, avoid short acting preparations.

Breakthrough pain

Use additional doses of morphine liquid for breakthrough pain, using one-twelfth to one-sixth of the daily requirement given as frequently as required. If repeated breakthrough doses are required, adjust the regular baseline morphine dose.

Chronic cancer pain, infant and child

SC infusion, 30–60 micrograms/kg/hour.

Acute pulmonary oedema

IV, 1–5 mg. Use lower end of dose range in the elderly.

Renal impairment

Moderate impairment, give three-quarters of estimated required dose.

Severe impairment, give half of estimated dose and watch for excessive sedation; avoid chronic use.

Dose equivalence

For chronic dosing, 30 mg oral morphine is equivalent to 10 mg SC/IM/IV morphine.

Use the same dose for sulfate, tartrate and hydrochloride salts.

For equivalent doses of other opioids, see Table 3–3 Opioid comparative information p. 50.

Administration instructions

For IV use, dilute and give over 4–5 minutes.

Compatible fluids: sodium chloride 0.9%, glucose 5%, sodium chloride 0.18% with glucose 4%.

Controlled release capsules (Kapanol[®], MS Mono[®]) may be opened, the pellets mixed with 10–20 mL of water or liquid feed, and given through a 16 or 20 gauge French gastrostomy tube, then rinsed through with more liquid to ensure all pellets are used. Do not crush pellets.

Counselling

Controlled release tablets (MS Contin[®]) must be swallowed whole; do not crush or chew them.

Controlled release capsules (Kapanol[®], MS Mono[®]) may be opened, and the pellets sprinkled on soft food or mixed with 30 mL liquid. Take within 30 minutes for Kapanol[®] or 60 minutes for MS Mono[®]. Do not crush or chew pellets.

For controlled release suspension (MS Contin[®]), add the contents of the sachet to the recommended amount of water, mix thoroughly and take immediately.

Practice points

- peak analgesia following a dose of morphine occurs:
 - within 60 minutes after conventional oral liquid
 - 30–60 minutes after SC/IM
 - 10–15 minutes after IV
 - 4–5 hours after MS Contin[®] or MS Mono[®]
 - 8–15 hours after Kapanol[®]
- do not use controlled release preparations for acute pain management as slow onset and offset make rapid, safe titration impossible
- reassess the patient's pain frequently and adjust dose of morphine accordingly
- if morphine overdose occurs in severe renal impairment, infusion of naloxone (p. 68) for several days may be necessary