PALLIATIVE CARE NETWORK OF WISCONSIN

FAST FACTS AND CONCEPTS #54
OPIOID INFUSIONS IN THE IMMINENTLY DYING PATIENT

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Introduction Opioid infusions, either intravenous (IV) or subcutaneous (SQ – see *Fast Fact* #28), can provide smooth and efficient control of distressing pain or dyspnea in the imminently dying patient. Opioids correctly titrated to provide symptom relief will not cause respiratory depression (see *Fast Fact* #8). It is common for physicians to order an opioid infusion in the dying patient as follows: *Start morphine infusion at 1 mg/hr, titrate to effect*. This type of order is pharmacologically unsound and unsafe; hospitals should adopt clinical practice guidelines that meet current national standards. The following is a step by step approach to rational opioid infusion prescribing in the dying patient, and is most appropriate for morphine or hydromorphone infusions; a future *Fast Fact* will discuss the use of methadone.

First, before starting an opioid infusion, calculate an equianalgesic dose of currently used opioids; then convert this to an equianalgesic basal rate.

Example: a patient on oral extended release morphine 60 mg q12, now unable to swallow. 60 mg q 12 = 120 mg/24 hours PO morphine = 40 mg IV morphine/24 hours = approximately 2 mg/hr IV infusion basal rate).

Second, if the current opioid dose is not effective, dose escalate the basal dose by 25-100% (see *Fast Fact* #20).

Third, if the patient is opioid naïve or when increasing the basal rate above the current equianalgesic rate, give a loading dose when starting the infusion.

Example: for a 1 mg/hr basal rate, give 2-5 mg loading dose (see reference 4 for additional dosing guidelines).

Fourth, choose a bolus dose (i.e. 'rescue' or 'PCA' dose if a patient controlled analgesia system is being used). This can be a nurse initiated bolus dose when using a standard IV infuser, or a patient, nurse or family initiative bolus using a PCA device. Even though the dying patient may be unable to press the button, the nurse or family members can use the PCA device, depending on local hospital policy. Based on patterns of breakthrough pain, a bolus dose of 50% - 150% of the hourly rate is a place to start. For example, for a morphine infusion of 2 mg/hr, choose a starting bolus dose of 1-3 mg.

Fifth, choose a dosing interval. The peak analgesic effect from an IV bolus dose is 10-20 minutes. Thus, the dosing interval (i.e. 'lockout interval' for a PCA device) should be in the range of 10-20 minutes.

Sixth, reassess for desired effect vs. side effects every 10-15 minutes until stable. Adjust bolus dose size every 30-60 minutes until desired effect is achieved. The 'right' bolus dose is one which controls undesirable symptoms with acceptable toxicities.

Seventh, reassess the need for a change in the basal rate no more frequently than every 6-8 hours. Use the number of administered bolus doses as a rough guide when calculating a new basal rate; never, however, increase the basal rate by more than 100% at any one time. When increasing the basal rate, always administer a loading dose so as to more rapidly achieve steady-state blood levels.

Common sense caution The above guidelines should be thought of as a rough guide; differences in age, renal and pulmonary function and past responses to opioids must be considered when developing an appropriate analgesic treatment plan. When patients become anuric close to death, continuous dosing may be discontinued in favor of bolus dosing to prevent metabolite accumulation and agitated delirium.

References

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