CLiP

15 minute Worksheet

Helping the patient with pain

5: Using morphine

Intermediate level

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Aim of this worksheet

To understand the use of morphine.

How to use this worksheet

- You can work through this worksheet by yourself, or with a tutor.
- Read the case study below, and then turn to the Work page overleaf.
- Work any way you want. You can start with the exercises on the Work page using your own knowledge. The answers are on the Information page - this is not cheating since you learn as you find the information. Alternatively you may prefer to start by reading the Information page before moving to the exercises on the Work page.
- This CLiP worksheet should take about 15 minutes to complete, but will take longer if you are working with colleagues or in a group. If anything is unclear, discuss it with a colleague.
- If you think any information is wrong or out of date let us know.
- Take this learning into your workplace using the activity on the back page.

Case study

Pat is a 36 year old woman, married with two sons aged 12 and 9. She had problems with her bowels for several months before some rectal bleeding made her see her GP. Investigations revealed a carcinoma of the sigmoid colon with liver metastases. She copes, with some denial, and refuses to tell her sons.

She has several pains and it is decided to start her on morphine.

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INFORMATION PAGE: Using morphine

Opioid of choice

M More is not better- like palliative care, the key is quality not quantity
O Opioid excess can cause distressing symptoms, not just sedation
R Regular administration is crucial for control of continuous or frequent pain
P Prescribers are more dangerous than opioids if they prescribe or administer opioids badly
H Help and advice should be sought if the pain is no better after repeated dose increases
I Individualised titration is essential as doses cannot be predicted- every patient has their own therapeutic range.
N Needs of the patient (psychological, social, spiritual and financial) have to be addressed for effective analgesia
E Extra caution is needed for opioid-naïve patients and for any IV or IM doses- the oral route is the first line choice

True or False Answers

1. **F** There is never a reason to delay the use of morphine if the pain requires a strong opioid.
2. **T** The aim is not simply to treat the pain, but to prevent it returning.
3. **F** The injection route may be more potent (ie. less drug is needed for the same effect) but it is not more effective (ie. it will not treat pains that do not respond to the oral route).
4. **F** As morphine is converted to potent active metabolites, reduced liver function has a minimal effect unless the liver function is severely impaired.
5. **T** The metabolites of morphine are active and excreted through the kidney.

Morphine dose timing

For continuous pain, analgesia should be continuous.
Regular administration should enable good pain control between doses so that the aim is no longer treatment of the pain, but preventing it from returning. The exact timing depends on experience with the length of action of the analgesic.
Reliance on 'PRN' (as required) prescribing alone is a recipe for a vicious circle of pain, anxiety / fear with reduced tolerance to pain, and so more pain. The exception is pain that is very sporadic, eg. once every few days.

The indications for injections

The inability to tolerate other routes (eg. nausea and vomiting, exhaustion), or urgent pain control.
But NOT because of poor pain control:
-giving it by injection means you need less drug to have the same effect (ie. it is more potent because the dose-response curve is shifted to the right);
-but it cannot be more effective because it's the same drug (ie. the dose-response curve is the same shape).

Metabolism

Morphine is absorbed from the small bowel, metabolised in the liver to an active metabolite (morphine-6-glucuronide, M6G) which is excreted through the kidney. Liver impairment has little impact on how the body handles morphine unless the impairment is severe. In contrast any reduction in renal function results in accumulation of M6G.

Dose range

Starting dose: -if previously on non-opioid = 1 - 2.5mg 4-hourly (or 5–10mg controlled release 12 hourly)
-if previously on weak opioid = 2.5 - 5mg 4-hourly (or 10-20mg controlled release 12 hourly)

There is no standard dose of morphine and doses cannot be predicted by weight, surface area, sex, ethnicity or age (so the correct answer is 'Don't know'). Therefore, the dose must be titrated to each individual patient.

The dose range for oral morphine is wide (5 to 500 mg per day) but only 10% of patients need more than 500mg/24hrs of oral morphine (or its equivalent).
The **median dose of oral morphine is 90mg/day.** This equates **to 15mg 4-hourly**

Titration:

The aim of titration is to give time for tolerance to adverse effects to develop (see CLiP worksheet on *Understanding the Adverse Effects of Opioids.*).
Answers to titration choices opposite:

1. **No.** Starting with a high dose would produce adverse effects that risk the patient rejecting an effective drug.
2. **No.** Usually any increase is done every third day.
3. **No.** A useful rule is to increase by half (50%), but if you are concerned about adverse effects increase by one-third.
4. **Yes.**

Some patients need more rapid titration (eg. in severe pain); others need slower titration (eg. poor renal function).

Formulation

There used to be a belief that only instant release morphine should be used for titration. However, titration can be successfully carried out with controlled release formulations which is useful for patients at home. Instant release reparations are preferable if rapid titration is needed.

True or false?

Having assessed Pat's pain she is started on oral morphine

1. It is too early to consider morphine — True False
2. It should be given regularly, even when she is pain free. — True False
3. It would be more effective by injection. — True False
4. The dose should be reduced if her liver function is abnormal — True False
5. The dose should be reduced if her kidney function is poor — True False

Choose

Ring the correct oral morphine doses

	4-hourly oral morphine dose		
• Starting dose for a patient on paracetamol only:	1mg	5mg	10mg
• Starting dose for a patient on codeine 30mg 4-hourly	2.5mg	5mg	10mg
• Median 4-hourly dose for a patient with cancer	15mg	25mg	50mg

Think

Pat is young, weighs 12 stone and still has good renal and liver function. Do you think her final morphine dose is going to be lower, the same or higher than the median dose for a cancer patient?

Lower Same Higher Don't know

Choose

Which of the following titration methods would be best for Pat?

1. Start on a high dose to control the pain and then reduce dose gradually — Yes No
2. Double the dose every day until the pain is controlled — Yes No
3. Double the dose every third day until the pain is controlled — Yes No
4. Increase the dose by half every third day until the pain is controlled — Yes No

Think

Which formulation do you think is best for titration?

Oral morphine solution Controlled release morphine tablet Injection

FURTHER ACTIVITY: Using morphine

Find a patient who is taking morphine and find out from the care team

- what they consider to be the correct starting doses for oral morphine
- what titration method they use

FURTHER READING: Using morphine

Journal articles and book chapters

Dale O, Piribauer M, Kaasa S, Moksnes K, *et al.* A double-blind, randomized, crossover comparison between single-dose and double-dose immediate release oral morphine at bedtime in cancer patients. *Journal of Pain and Symptom Management.*2009; **37**: 68–76.

Fallon M, Cherny NI, Hanks G. Opioid analgesic therapy. In, *Oxford Textbook of Palliative Medicine* 4th ed. Hanks G, Cherny NI, Christakis NA, Fallon M, Kaasa S, Portenoy RK. eds. Oxford : Oxford University Press, 2010, p661-98.

Hanks GW, *et al.* Expert Working Group of the Research Network of the European Association for Palliative Care. Morphine and alternative opioids in cancer pain: the EAPC recommendations. *British Journal of Cancer.* 2001; **84**(5): 587-93.

Klepstad P, Kaasa S, Jystad A, Hval B, Borchgrevink PC. Immediate- or sustained-release morphine for dose finding during start of morphine to cancer patients: a randomized, double-blind trial. *Pain.* 2003; 101(1-2):193-8.

Twycross R, Wilcock A, Stark Toller C. Pain relief. In: *Symptom Management in Advanced Cancer, 4th ed.* Nottingham: palliativedrugs.com, 2009. pp. 13–59.

Zernikow B, Lindena G. Long-acting morphine for pain control in paediatric oncology. *Medical and Pediatric Oncology.* 2001; **36**(4): 451–8.

Further resources

A Guide to Symptom Relief in Palliative Care, 6th ed. Regnard C, Dean M. Oxford: Radcliffe Medical Press, 2010

e-lfh: e-Learning for Healthcare contains a range of online self-learning programmes, including several relating to end-of-life care (e-ecla). Registration is required but is free. http://www.e-lfh.org.uk/projects/e-elca/index.html

Twycross RG. (1999) *Morphine and the Relief of Cancer Pain: information for patients, families and friends*. Beaconsfield: Beaconsfield Publishers.

Oxford Textbook of Palliative Medicine 4th ed. Hanks G, Cherny NI, Christakis NA, Fallon M, Kaasa S, Portenoy RK. eds. Oxford : Oxford University Press, 2010.

PCF6- Palliative Care Formulary, 6th ed. Twycross RG, Wilcock A, Howard P. www.palliativedrugs.com

Symptom Management in Advanced Cancer, 4th edition. Twycross RG, Wilcock A, Stark-Toller C. Oxford: Radcliffe Press, 2009

Wall and Melzack's Textbook of pain, 5th ed. McMahon SB, Koltzenburg M, eds. Edinburgh : Elsevier Churchill Livingstone, 2005.

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15 minute Worksheet

Current Learning in Palliative care

An accessible learning programme for health care professionals

15 minute worksheets are available on:

- An introduction to palliative care
- Helping the patient with pain
- Helping the patient with symptoms other than pain
- Moving the ill patient
- Psychological and spiritual needs
- Helping patients with reduced hydration and nutrition
- Procedures in palliative care
- Planning care in advance
- Understanding and helping the person with learning disabilities
- The last hours and days
- Bereavement

Available online on

www.clip.org.uk