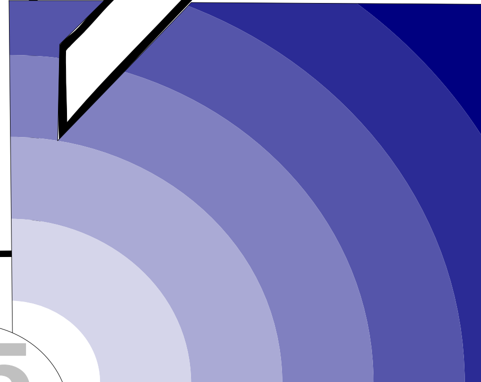
CLIP



15 minute Worksheet

Helping the patient with pain

5: Using morphine

Intermediate level

Produced by
Coleman Education Centre
St. Oswald's Hospice
Regent Avenue
Gosforth
Newcastle-upon-Tyne
NE3 1EE

Tel: 0191 285 0063
Fax: 0191 284 8004

This version written and edited by:
Claud Regnard
Consultant in Palliative Medicine
St. Oswald's Hospice, Newcastle City Hospitals NHS Trust and Northgate&Prudhoe NHS Trust
Margaret Kindlen
Palliative Care Nurse advisor

Development of this worksheet was supported by
Help the Hospices for the IMPACT project

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, then work on the questions overleaf.
- The work page is on the right side, the information page is on the left.
- Work any way you want: you can try answering from your own knowledge (in which case fold over the information page), you can use the information page (this is not cheating- you learn as you find the information), or you can use other sources of information
- It should take you about 15 minutes. If anything is unclear, discuss it with a colleague.
- If you think any information is wrong or out of date let us know
- Use the activity on the back page and take this learning into your workplace

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.

v13 2008

INFORMATION PAGE: Using morphine

Opioid of choice

M orphine given
O rally and
R egularly
P revents pain.
H aloperidol treats nausea,
I njections are unnecessary,
N o addiction is seen and
E arly use is best

Morphine is still the gold standard opioid:
- it has more evidence for its use and safety than any other strong opioid
- there is no evidence that any other opioids are more effective than morphine.
- there is over 30 years of its use in palliative care
- it has wide safety margin
- it is well tolerated by most patients

MCQ 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 little effect
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.
P R N = "Pain Relief Nil" !

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. In contrast any reduction in renal function results in accumulation of M6G.
Two other metabolites, M3G and nor-morphine, may be the cause of myoclonic jerks and agitation in some patients. M3G is also renally excreted and will accumulate in renal impairment.

Dose range

Starting dose: -if previously on non-opioid = 2.5mg 4-hourly
-if previously on weak opioid = 5mg 4-hourly
There is no standard dose of morphine and the dose must be titrated to each individual patient.
Doses cannot be predicted by weight, surface area, sex, ethnicity or age (so the correct answer is 'Don't know').

The usual dose range for morphine is 5 to 500 mg per day (**median is 100mg/day which ≙ 15mg 4-hourly**).
90% of patients are managed on less than 500 mg per day

Titration:

The aim of titration is to allow the patient to allow tolerance to adverse effects to develop (see CLiP worksheet on *Understanding the Adverse Effects of Opioids.*).
No. Starting with a high dose would produce adverse effects that risk the patient rejecting an effective drug.
No. Usually any increase is done every third day.
No. A useful rule is to increase by half (50%).
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. There is now evidence to show that titration can be successfully carried out with controlled release formulations- useful for patients at home. However, instant release reparations are preferable if rapid titration is needed.

MCQ **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 if 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 poor True False
5. The dose should be reduced if her kidney function is poor True False

Write **Ring the correct oral morphine doses**

	4-hourly oral morphine dose		
• Starting dose for a patient on paracetamol only:	2.5mg	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. Is her final morphine dose going to be lower, the same or higher than the median dose for a cancer patient?**

Lower Same Higher Don't know

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

- Start on a high dose to control the pain and then reduce dose gradually Yes No
- Double the dose every day until the pain is controlled Yes No
- Double the dose every third day until the pain is controlled Yes No
- Increase the dose by half every third day until the pain is controlled Yes No

Think **Which formulation 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

Hanks GW. Conno F. Cherny N. Hanna M. Kalso E. McQuay HJ. Mercadante S. Meynadier J. Poulain P. Ripamonti C. Radbruch L. Casas JR. Sawe J. Twycross RG. Ventafridda V. 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.

Hanks GW. Forbes K. Opioid responsiveness. *Acta Anaesthesiologica Scandinavica.* 1997; **41:** 154-8.

Hawley P. Forbes K. Hanks GW. Opioid rotation: Does it have a role? *Palliative Medicine.* 1998; 12(1): 60-64.

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.

Resource books and websites

A Guide to Symptom Relief in Palliative Care, 5th ed. Regnard C, Hockley J. Abingdon: Radcliffe Medical Press, 2004

Cancer Pain Relief and Palliative Care. Geneva : WHO, 1990.

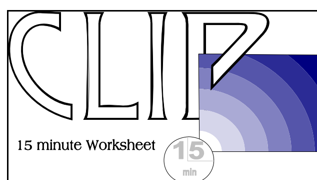
Oral Morphine, Information for Patients, Families and Friends. Twycross R., Lack S.A. Beaconsfield Publishers. 1988.

Oxford Textbook of Palliative Medicine 3rd ed. Doyle D, Hanks G, Cherny NI, Calman K eds. Oxford : Oxford University Press, 2003.

PCF3- Palliative Care Formulary, 3rd ed. Twycross RG, Wilcock A. Oxford: Radcliffe Press, 2008. Also on www.palliativedrugs.com

Symptom Management in Advanced Cancer, 3rd edition. 2001. Twycross RG, Wilcock A. Abingdon: Radcliffe Medical Press.

Wall and Melzack's textbook of pain, 5th ed. Stephen B. McMahon and Martin Koltzenburg, eds. Edinburgh : Elsevier Churchill Livingstone, 2006.



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 needs
- Helping patients with reduced hydration and nutrition
- Procedures in palliative care
- Understanding and helping the person with learning disabilities
- The last hours and days
- Bereavement

Also available online on
www.helpthehospices.org.uk (click on 'e-learning')

© 2008 **CLIP**: CURRENT LEARNING IN PALLIATIVE CARE