South Afr J Anaesth Analg. 2022;28(4):156-158
https://doi.org/10.36303/SAJAA.2022.28.4.2846

South Afr J Anaesth Analg
ISSN 2220-1181 EISSN 2220-1173

REVIEW

Cancer pain management in a hospital setting

E Hodgson

Department of Anaesthesia and Critical Care, Nelson R Mandela School of Medicine, University of KwaZulu-Natal, South Africa
Corresponding author, email: *iti20178@mweb.co.za*

The overall incidence of significant pain in cancer patients has been assessed at 40%.[1] The World Health Organization (WHO) has published guidelines[2] for the management of cancer pain and emphasised the need for providing treatment based upon the following aspects:

1. By mouth
2. By the clock
3. For the individual

Achieving this, particularly for patients with terminal cancer, is difficult, if not impossible, in an outpatient setting. It is especially difficult if opioids are included due to the risk of side effects, particularly respiratory depression.[3]

Cancer patients may require hospital admission for staging of their disease which may include surgical procedures as extensive as a laparotomy or thoracotomy. Hospital admission provides an ideal opportunity to optimise pain management.

The role of opioids in pain management

The use of opioids in the management of non-cancer pain has been the source of considerable controversy over the past 20–30 years, leading to widely-divergent approaches to opioid prescription. The 1980s is characterised by opiophobia with significant undertreatment of pain. However, during the 1990s to early 2000s, pain was recognised as the fifth vital sign, which led to a significant increase in opioid prescription. During the 2000s to the present, prescription opioid abuse (specifically related to oxycodone) has become an increasing health issue. Significantly, prescription opioid abuse seems largely confined to the USA.

Opioids for the management of cancer pain

Elisabeth Kübler-Ross pioneered the provision of opioids for the relief of cancer pain with the publication of her book "On death and dying", in 1969.

Opioids are never used in isolation, but rather as a component of a multimodal pain relief strategy. A follow-up to this article in the next issue of SAJAA, will outline the multimodal approach to cancer pain management.

The initiation of opioid therapy in cancer patients is best undertaken in hospital. While opioids lack significant organ toxicity, initiation of therapy may be associated with serious respiratory depression that may prove fatal, although this is rare. Starting opioids is thus best done in a monitored environment.

Each cancer patient is unique in both their experience of pain and their sensitivity to opioids, resulting in a unique dose requirement for optimal pain relief. While a patient is in hospital, accurate dose requirements can be determined using patient-controlled analgesia (PCA).[4]

The most commonly used drug for PCA is morphine but other drugs such as tramadol and oxycodone can also be used. PCA devices can either be programmable or disposable. The most common settings for programmable PCA pumps are as follows:

1. PCA dose	Morphine 1 mg (oxycodone 1 mg; tramadol 10 mg)
2. Volume	IV: 50–100 mg in 50–100 ml Subcutaneous: 25–50 ml
3. Bolus	IV: 1 ml Subcutaneous: 0.5 ml
4. Lockout	5 minutes
5. 4-hour limit	Not required, but can be set at 30–40 mg

Analgesia will be maintained by PCA. Therefore, adequate analgesia must be established prior to initiation of PCA. The maintenance of PCA is equivalent for both IV and subcutaneous PCA. The latter has the advantage of not requiring maintenance of IV access, which may prove a challenge in cancer patients.[5]

The average opioid requirement is best established over a 48-hour period, at least. The ratio of IV to oral morphine is 1:3; oxycodone is 1:1.5 and tramadol is 1:1.[6]

When cancer patients go home, it should be recognised that two types of pain will need to be managed:[7]

1. Baseline pain

Management is dependent on the characteristics of the tumour such as location, size and associated inflammation.

This pain is best managed with slow-release opioid formulations that should make up 70% of the identified dose requirement. These formulations are marketed as providing adequate pain relief for 12 hours, but clinical experience has proven 8-hourly dosing to be more clinically effective.

The required dose should be divided by three to be given every eight hours.

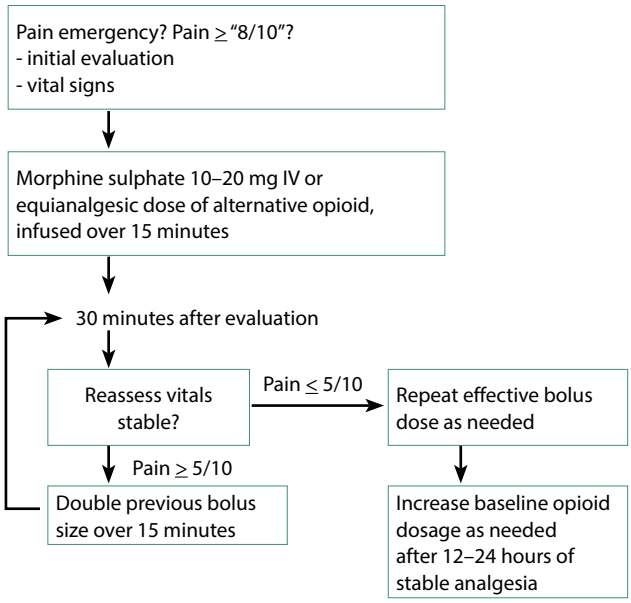

Figure 1: Cancer pain emergency protocol (IV, intravenous)[9]

2. Breakthrough pain

Tumour progression and the patient's activities of daily living may result in breakthrough pain that will require immediate treatment.[8]

Thirty per cent of the identified opioid requirement is reserved for these episodes and is to be administered as an immediate release preparation. Morphine syrup is the most common state practice while various formulations, usually tablets, are available in the private sector.

The recommended dose is 10% of the maintenance dose that can be repeated within an hour if no relief is achieved. A more aggressive approach is outlined in Figure 1.[9]

Alternative opioids and delivery systems for breakthrough pain

Oral administration of drugs results in a delayed onset of action due to passage through the stomach, then absorption and first-pass metabolism through the liver. The active drug thus takes at least 15–20 minutes to reach the systemic circulation and take effect.

Morphine and oxycodone are also relatively slow acting at a receptor level. The use of these drugs, administered orally, are thus not only relatively ineffective but may also be dangerous as the peak effect may occur as the breakthrough pain is receding.[7]

Fentanyl cannot be delivered orally due to its almost complete first-pass metabolism to inactive metabolites. However, drug delivery systems have been developed to deliver fentanyl via the sublingual, buccal or intranasal routes, bypassing the liver and directly accessing the systemic circulation so that the pharmacokinetics of analgesic onset and offset more closely approximate that of breakthrough pain. The most recently developed fentanyl delivery system is a buccal soluble film which is also the most accurate approximation of the onset and offset of breakthrough pain. Fentanyl buccal soluble film has proven effective in the management of breakthrough cancer pain when added to routine therapy.[10]

References

1. Evenepoel M, Haenen V, De Baerdemaecker T, et al. Pain prevalence during cancer treatment: a systematic review and meta-analysis. J Pain Symptom Manage. 2022;63(3):e217-34. https://doi.org/10.1016/j.jpainsymman.2021.09.011.
2. WHO guidelines review committee. WHO guidelines for the pharmacological and radiotherapeutic management of cancer pain in adults and adolescents. Geneva: World Health Organization; 2018.
3. Dziedzic KL, Albert RH. Management of intractable symptoms in oncologic care. Curr Onc Rep. 2021;23(8):93-98. https://doi.org/10.1007/s11912-021-01082-2.
4. Grass JA. Patient-controlled analgesia. Anesth Analg. 2005;101(5 Suppl):S44-S61. https://doi.org/10.1213/01.ANE.0000177102.11682.20.
5. Nijland L, Schmidt P, Frosch M, et al. Subcutaneous or intravenous opioid administration by patient-controlled analgesia in cancer pain: a systematic literature review. Supp Care Cancer. 2019;27(1):33-42. https://doi.org/10.1007/s00520-018-4368-x.
6. Lasheen W, Walsh D, Mahmoud F, et al. The intravenous to oral relative milligram potency ratio of morphine during chronic dosing in cancer pain. Pall Med. 2010;24(1):9-16. https://doi.org/10.1177/0269216309346595.
7. Herrero CC, Batista N, Fernández ND, et al. Breakthrough cancer pain: review and calls to action to improve its management. Clin Transl Oncol. 2020;22(8):1216-26. https://doi.org/10.1007/s12094-019-02268-8.
8. Davies AN, Elsher F, Filbet MJ, et al. Breakthrough cancer pain (BTcP) management: a review of international and national guidelines. BMJ Support Palliat Care. 2018;8(3):241-9. https://doi.org/10.1136/bmjspcare-2017-001467.
9. Hagen NA, Elwood T, Ernst S. Cancer pain emergencies: a protocol for management. J Pain Symptom Manage. 1997;14(1):45-6. https://doi.org/10.1016/S0885-3924(97)00004-3.
10. Garnock-Jones KP. Fentanyl buccal soluble film: a review in breakthrough cancer pain. Clin Drug Investig. 2016;36(5):413-9. https://doi.org/10.1007/s40261-016-0394-y.