Oesophageal pain and odynophagia	Candida, cytomegalovirus, aphthous ulcers, herpes simplex	Upper endoscopy ulcer appearance, biopsy and viral cultures help to make a definitive diagnosis Oral fluconazole 200–400 mg/day for 14–21 days, or IV if patient cannot swallow Treat HSV with acyclovir 15 mg/kg/day IVI or 200 mg 5 times/day p.o. for 14–21 days For CMV, ganciclovir IVI (but has many adverse effects)
Kaposi sarcoma	Malignancy	Analgesics, radiotherapy
Herpes neuropathy	Herpes zoster	Early treatment of PHN with antiviral agent and TCA

13.12 Acute cancer pain

This section focuses on nonsurgical pain in the palliative scenario. The aim of analgesia in this setting is a VAS of < 4/10 with movement. The analgesic plan may differ from the approach to nonmalignant pain, as the focus is more on patient comfort, while concerns about adverse effects are more in the background. Both the patient and the caregivers must understand this approach. Of course, this does not mean that clinicians have the freedom to prescribe drugs at dosages that may cause harm, even in uncompromised patients. Caregivers should take note of patients' complaints, fears and concerns. No drug can replace empathy.

Changes in the characteristics of pain may signify progression of local or distant disease, a transition from acute nociceptive pain to ANP (CNP or PNP) or from acute to chronic pain, an appearance of drug tolerance, or changes in drug clearance due to a decline in vital organ function (cardiac, hepatic, renal, blood), and psychological changes (e.g. anxiety and depression). Moreover, the adverse effects of oncotherapy often cause severe pain. These include oncotherapy-related peripheral neuropathy and oral mucositis. The oncotherapy-related pain of mucositis can be treated effectively with a ketamine mouthwash. The concentration is 4 mg/ml and the dose is 5 ml (20 mg) 4-hourly, if necessary. The patient must rinse their mouth for a few minutes and then spit out the solution.

Patients and caregivers must take part in the analgesia plan; they should know what to expect, what to look for, how to manage adverse effects, how to adjust doses, and when to seek help.

Nociceptive and neuropathic pain is managed according to guidelines as discussed above; often a combination of drugs is used for both types of pain. Regarding opioids, long-acting dosage forms, namely slow-release oral tablets and transdermal delivery systems (patches), are often used. Transition from short-acting oral or IV opioids to sustained-release tablets or patches is usually not complicated. The total daily dose of a short-acting or parenteral dosage form is determined, and then replaced by the long-acting form. This can be done for an IVI to patch, short-acting oral to long-acting, or even from one opioid to another using the daily MME

(Table I). The following opioids will be discussed briefly: morphine, oxycodone, fentanyl and buprenorphine.

- *Morphine:* The total daily parenteral dose of *morphine* is determined. Morphine has an oral bioavailability of approximately 30%. Therefore, the total daily oral dose is approximately three times the IV dose. This oral dose is offered as a long-acting tablet containing the daily dose. These are available as 10 mg, 30 mg and 100 mg. The long-acting tablet is taken as 50% of the total dose 12-hourly. With the development of tolerance, higher doses will be required. The new dose is determined using the morphine solution/syrup (5 mg, 10 mg, 20 mg or 100 mg/5 ml). For breakthrough pain, the syrup is used. The dose is 0.2–0.5 mg/kg 4–6-hourly. The syrup is titrated up until the VAS has decreased to < 4/10 with movement. The new total daily dose is the total of the long-acting tablet plus the total of the solution. Once the total morphine dose has been established, this is replaced by a slow-release tablet with an adjusted morphine content.
- *Oxycodone:* It has an oral bioavailability of 50% (Table I). If the total IV dose is known, the oral dose is twice that amount. Half of this dose is given p.o. 12-hourly as the prolonged-release tablet (5 mg, 10 mg, 20 mg, 40 mg and 80 mg). The short-acting 5 mg tablet is used 4–6-hourly for breakthrough pain. The total daily dose is determined and the long-acting dose is adjusted accordingly.
- *Buprenorphine:* It has an oral bioavailability of 50%. The total IV dose is determined and the oral dose is twice the total IV dose. This amount is divided by 4 and taken 6-hourly. If the oral dose is known, the IV dose can be calculated (50% of the oral dose) and the IV dose per hour is calculated (total IV dose/24). The prolonged-release patch that delivers the calculated hourly dose, is used. The patches available are 5 µg/hour, 10 µg/hour and 20 µg/hour.
- *Fentanyl:* This is given IVI. The total daily dose is known, and the hourly dose can be calculated. The prolonged-release patch that delivers approximately that amount is then prescribed. These patches deliver 12 µ/hour, 25 µ/hour, 50 µ/hour, 75 µ/hour or 100 µ/hour. To adjust the patch dose, the patient must be admitted and fentanyl administered IVI using a PCA pump. The new total daily dose is determined and the most appropriate patch is applied.

13.13 Opioid tolerance

(Also see opioid tolerance in the ICU – section 13.4.1)

Opioid tolerance is a common cause for the failure of opioid analgesia. Exposure to an opioid, particularly as the sole analgesic, gives rise to pharmacodynamic tolerance (loss of activity, not due to faster drug clearance but to decreased analgesic effect). Tolerance develops to the adverse effects of opioids, namely sedation, hypoventilation and nausea, but not to constipation and miosis.