Basic sciences, various medical specialist fields, radiology and other health faculties fall under the "pain management umbrella". In this talk, I will present new concepts and areas of management that may be of interest to the generalist anaesthesiologist.

Pre-emptive analgesia

The concept of pre-emptive analgesia was popularised in the 1990s. Enthusiasm for this approach faded as surgical colleagues reported increased rates of infection, as well as distortion of the surgical field. Anaesthesiologists did not report significant pain relief to justify the risks.

We now know that we need to treat pain aggressively throughout the perioperative period, not just pre-emptively. This is called preventive analgesia.

Why treat acute pain?

- It is humane to do so, and it is a human right to receive pain control treatment.
- The negative physiological implications of acute pain on the cardiovascular, respiratory and endocrinological systems, delayed ambulation and delayed discharge from hospital, as well as hospital readmission rates, are well documented.

Persistent postoperative pain

Persistent postoperative pain (chronic pain) is being studied extensively. We know that 1.5% of all surgical procedures will result in chronic pain. This is a significant proportion of patients.

What can we do?

There is good evidence to show that high intensity and long duration of pain are significant risk factors for the development of persistent postoperative pain.

Preventing central sensitisation

We aim to prevent intracellular changes, neurotransmitter release and up- or downregulation of receptors. Evidence suggests that nerve conduction blockers are superior to analgesics, particularly peripherally acting analgesics like nonsteroidal anti-inflammatory drugs (NSAIDS), in preventing central sensitisation.

Mechanism

Remember that analgesics, and not anaesthetics, prevent central sensitisation.

Sodium channel blockers (local anaesthetics)

Nerve block and neuroaxial blockade make a difference.

Early treatment of neuropathic pain

Any surgery will cause nerve damage, either as damage to a mixed nerve, or damage to sensory fibres resulting from skin incision and tissue manipulation.

Gabapentinoids

Gabapentinoids bind to an α2δ subunit of presynaptic calcium channel blockers and prevent the influx of calcium and the release of excitatory
neurotransmitters. It is recommended to use 300-1 200 mg gabapentin (Neurontin®) preoperatively. Several systematic reviews confirm the opioid-sparing effect.

**Ketamine**

An analgesic dose of 0.1-0.3 mg/kg, administered with induction, is likely to produce a morphine-sparing effect and reduce chronic pain.

**Surgical techniques**

Certain surgical techniques were developed to minimise nerve damage (e.g. laparoscopic surgery, dissection, special care). Only one large prospective study shows less pain following laparoscopic hernia repair.

**New drugs (not available in South Africa)**

- Intrathecal encapsulated morphine provides 48-72 hours of analgesia after removal of the epidural catheter. There are mixed reports regarding the benefit:risk ratio.

- Capsaicin patch can be used for diabetic neuropathy and arthritic pain. The patch acts by depleting substance P peripherally, and is applied in the doctor’s rooms over the painful area under a field local anaesthetic block. It is removed after two hours and provides pain relief for three to six months. The patch has not been approved by the FDA.

- Tapentadol is a potent mu-receptor agonist and norepinephrine receptor inhibitor, with half the potency of morphine. The dosage is 50-100 mg qid. Tapentadol was approved by the FDA in 2008, and does not cause renal or hepatic toxicity.

**New techniques**

- PCRA (patient-controlled regional analgesia): Suitable for ambulatory surgery and can be inserted into the incision, perineurally and intraarticularly. Patient selection is essential. PCRA is safe and effective. The results of placebo-controlled trials have been published.

- PCINA (patient-controlled intranasal analgesia): Available as intranasal spray/dropper fentanyl. PCINA bypasses the liver, and has a rapid effect, but there is limited evidence.

- PCTPA (patient-controlled transpulmonary analgesia): Administration of fentanyl, but still being developed.

**No dextropropoxyphene analgesic preparations: what now?**

Dextropropoxyphene-containing preparations (e.g. Lentogesic®, Synap Forte®, Doxyfene®) were withdrawn in Europe, New Zealand and Australia in 2009, with the USA doing the same late in 2009. In December 2010, the medication was suspended in South Africa. Pain SA supports the suspension of the drug in South Africa.

The main reasons cited for withdrawal are the increased rate of cardiovascular complications in the elderly, and increased suicide potential.

The withdrawal has left a gap in the market. It is recommended that NSAIDs, tramadol, paracetamol and codeine-containing preparations fill this gap.

**Occipital nerve block for postdural puncture headache**

I would like to draw your attention to an alternative management of postdural puncture headache (PDPH). Evidence suggests use of repeated occipital nerve blocks for the treatment of PDPH.

**References available on request.**