

Initially designed to give superior analgesia to the terminally ill, avoiding intolerable side effects, the 'pump' is now used for chronic non-malignant pain.

This means that continued use over decades may be being proposed and as yet we are unable to say for certain how safe that may be.

As explained earlier, there are a variety of adverse effects that can arise from the intrathecal delivery of narcotics, as with any drug. (Note: only preservative free solutions are licensed by the FDA).

In 1999, Brown et al([1](#)) looked at the outcomes of using the pump for a variety of conditions. The authors reported:

In 1999, Brown et al([1](#)) looked at the outcomes of using the pump for a variety of conditions. The authors reported: **"Intrathecal opioid treatment provides some benefit although substantial physical impairment continues to cause debilitation in the patient population."**

They conclude:

They conclude:

"Generally, patients after 3 years or more of intrathecal opioid treatment can be characterised as having substantially impaired physical functioning with a high prevalence of side effects."

These ongoing side effects include:

- reduced libido
- pruritus (itching)
- hyperalgesia (paradoxical increase in pain)
- myoclonus (involuntary jerks)
- urinary retention
- amenorrhoea (discontinued periods)
- uncommonly: raised antidiuretic hormone causing oedema in the lower limb

- constipation

One must recall that Sabbe et al ([\[2\]](#)) in 1994, found that the synthetic opioid sufentanil administered spinally in dogs, resulted in

One must recall that Sabbe et al ([\[2\]](#)) in 1994, found that the synthetic opioid sufentanil administered spinally in dogs, resulted in

"an inflammatory reaction secondary to the catheter was found in all animals."

This localised irritation may well give rise to more chronic inflammation in susceptible individuals.

Kamran and Wright (29), writing about the Complications of intrathecal drug delivery systems, fail, as do the majority of authors, to adequately address the issues of long-term adverse effects.

Kamran and Wright (29), writing about the Complications of intrathecal drug delivery systems, fail, as do the majority of authors, to adequately address the issues of long-term adverse effects.

They refer to incidences of reduced libido and impotence of 6.1%, constipation 16.5% and peripheral oedema 5.1%; they also mention granuloma, seroma and infection.

However, they do not discuss the longer term sequelae to these problems, of which arachnoiditis may be one.

The use of adjuvants in the pump, such as clonidine, is becoming more widespread, despite a warning by the manufacturer of Duraclon stating clearly that it does not recommend intrathecal administration([\[3\]](#)).

Epidural clonidine has been found to be helpful in combating neuropathic pain and was initially used in terminally ill patients. It is preservative free. Clonidine acts at a spinal level to produce

analgesia.

It was first used clinically for this purpose in 1984. Gordh ([\[4\]](#)) from Sweden, in reviewing 15 years of what he terms " long term medication of the spinal cord" noted that its use for post-operative pain might be limited if it were used as a single agent, as doses sufficient to provide adequate analgesia also produce "troublesome side effects" including hypotension and bradycardia.

He expressed doubt as to clonidine's useful role in post-operative pain management.

However, he did cite its use in treating neuropathic cancer pain. In conclusion, Gordh remarked

However, he did cite its use in treating neuropathic cancer pain. In conclusion, Gordh remarked"It may also be useful in chronic non-malignant pain, but large scale use in this field can hardly be recommended before results from controlled long term studies are available."

The UK based Development and Evaluation Committee Report ([\[5\]](#)) No.55 (June 1996) suggested that 30-50% of patients report 'excellent' pain relief. However, there is a warning:

The UK based Development and Evaluation Committee Report ([\[5\]](#)) No.55 (June 1996) suggested that 30-50% of patients report 'excellent' pain relief. However, there is a warning:

"There are significant risks and complications with these devices."

[\[1\]](#) Brown J, Klapow J, Fdoleys D, Lowery D, Tutak U *Clin J Pain* 1999 Jun; 15 (2): 122-31
Disease-specific and generic health outcomes: a model for the evaluation of long-term intrathecal opioid therapy in noncancer low back pain patients.

[\[2\]](#) Sabbe MB, Grafe MR, Mjanger E, Tisco PJ, Hill HF, Yaksh TL *Anesthesiology* 1994 Oct; 81 (4) : 899-920 Spinal delivery of sufentanil, alfentanil, and morphine in dogs. Physiologic and toxicologic investigations.

[\[3\]](#) Data from Clinical Pharmacology 2000 Website.

[4] Gordh T Fifteen years of epidural clonidine- Current status Internet Publication: <http://www.esraeurope.org/abstracts/abstracts98/gordh2.htm>

[5] Robert G Development and Evaluation Committee Report No. 55: Implantable Infusion Devices (IIPs) for Long Term Pain Management June 1996 available as an Internet publication: <http://www.epi.bris.ac.uk/rd/publicat/dec/dec55.htm>

[29] Kamran S, Wright D, Complications of Intrathecal Drug Delivery Systems , Internet publication <http://www.priory.com/anaes/pump.htm>