

# RGH Pharmacy E-Bulletin

Volume 23 (4): August 14, 2006

A joint initiative of the Patient Services Section and the Drug and Therapeutics Information Service of the Pharmacy Department, Repatriation General Hospital, Daw Park, South Australia. The RGH Pharmacy E-Bulletin is distributed in electronic format on a weekly basis, and aims to present concise, factual information on issues of current interest in therapeutics, drug safety and cost-effective use of medications.

Editor: Assoc. Prof. Chris Alderman, University of South Australia – Director of Pharmacy, RGH

© Pharmacy Department, Repatriation General Hospital, Daw Park, South Australia 5041

## Transdermal buprenorphine

Chronic pain has always presented challenges for clinicians and patients. Pain is a multifaceted problem that can affect any patient at any age. Treatment for chronic pain falls into two broad categories: non-opioid analgesic (e.g. paracetamol, NSAIDs and others) and opioid analgesics (e.g. morphine, oxycodone, fentanyl)

Patients who do not achieve adequate relief from non-opioid analgesics may eventually require opioid analgesics. These medications have a characteristic pattern of adverse effects, and in addition, chronic use can also lead to addiction or dependence on the drug.

Buprenorphine has been available in parenteral and sublingual forms since the 1970s. It has been used mainly in the area of opiate withdrawal in opiate dependant individuals. In Australia, a transdermal formulation of buprenorphine (NORSPAN<sup>®</sup>) was included on the scheduled of subsidised medications that can be accessed through the Pharmaceutical Benefits Scheme (PBS). The approved indication in Australia for this transdermal formulation of buprenorphine is for the management of chronic pain not responding to non-opioid analgesics.

Buprenorphine is a derivative of the morphine alkaloid thebaine. Its primary action in humans is a partial agonist at the  $\mu$  opioid receptor and an antagonist at the  $\kappa$  receptor. Buprenorphine has produces dose-related analgesia similar to other full  $\mu$  opioid agonists (e.g. morphine), but the analgesic effect of buprenorphine has a ceiling effect which may be due to slow disassociation from receptors (which would also account for the prolonged analgesic effect and the reduced potential for physical dependence.)

There are currently three strengths of NORSPAN<sup>®</sup> available: 5mcg/hr, 10mcg/hr and 20 mcg/hr. Each patch of NORSPAN<sup>®</sup> provides a steady delivery of buprenorphine for up to seven days. Steady state is approximately three days after the first patch is applied. Upon removal and cessation of treatment there is a reduction of plasma concentration by 50% after about twelve hours. The current place of these products in pain management is thought to sit at the point between non-opiate analgesia and the initiation of full agonist opiate analgesia.

Treatment should be initiated with the 5mcg/hr patch and over a course of two weeks can be titrated upwards if pain is not adequately controlled. Multiple patches of different strengths may be used during the titration period; however subsequent patches should not be used at the same skin site, as each site should be rested for three to four weeks. As with other transdermal applications, the site chosen should be clean, dry and as hairless as possible.

There is no safety or efficacy data for the NORSPAN<sup>®</sup> product when used for patients under the age of 18. There is no need to adjust the dose in renal impairment, but for patients with severe hepatic impairment there may be some accumulation of buprenorphine and thus alternative therapy should be considered.

Acknowledgment – This E-Bulletin is based on work by Tim Wong, Pharmacist, RGH

**FOR FURTHER INFORMATION – CONTACT THE PHARMACY DEPARTMENT ON 82751763 or email: [chris.alderman@rgh.sa.gov.au](mailto:chris.alderman@rgh.sa.gov.au)**  
Information in this E-Bulletin is derived from critical analysis of available evidence – individual clinical circumstances should be considered when making treatment decisions. You are welcome to forward this E-bulletin by email to others you might feel would be interested, or to print the E-Bulletin for wider distribution. Reproduction of this material is permissible for purposes of individual study or research.