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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.
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Hydromorphone prolonged-release (JurnistaÒ)

A hydromorphone prolonged-release tablet (Jurnista®) was recently listed on the Pharmaceutical Benefits Scheme (PBS) schedule as a restricted benefit for chronic severe disabling cancer or non-cancer pain not responding to non-opioid analgesics. Jurnista® was listed after recommendation by the Pharmaceutical Benefits Advisory Committee on the basis of cost minimisation when compared with oxycodone controlled-release tablets, being no less effective and similarly priced. Hydromorphone is an opioid which is approximately equivalent to five times the potency of morphine. Jurnista® has been formulated using the OROS® osmotic pump bilayer with a semi-permeable cellulose acetate coating that controls the rate at which water is absorbed into the tablet after swallowing. The drug is released from this system at a controlled rate by a laser-drilled hole in the tablet. Pharmacokinetic studies demonstrate that plasma concentrations reach a plateau within 6–8 hours after oral administration and then remain relatively constant until approximately 24 hours post-dose.

Jurnista® tablets are available in strengths of 8 mg, 16mg, 32 mg and 64 mg and are for once-daily administration. Due to the potency of Jurnista® there is a high potential for serious adverse drug effects and overdoses. This is an important consideration when switching to hydromorphone from other opioids, and it is recommended that when switching to Jurnista®, the equi-analgesic total daily dose should be calculated and then reduced to between one-third to one-half of the equivalent dose to allow for incomplete cross-tolerance. The dose may then be titrated slowly (at intervals no less than every two days) according to effect.

Table of suggested equi-analgesic doses:

Opioid	**Oral**	**Parenteral**
Morphine	30 mg	10 mg IV/IM/SC
Codeine	180 – 240 mg	-
Fentanyl	-	100 mcg IV/IM/SC
Hydromorphone	**6 - 7.5 mg**	**1.5 – 2 mg IM/SC**
Oxycodone	15 mg	10 mg IV/SC
Tramadol	100 – 150 mg	100 mg IM/IV

(adapted from the Analgesic Therapeutic Guidelines 2007)

Jurnista® tablets should be used with caution in patients with renal or hepatic impairment. Results from trials using hydromorphone immediate-release tablets found that in patients with moderate hepatic impairment, drug exposure (measured by plasma AUC) as well as peak plasma concentrations of hydromorphone were approximately four times higher compared with healthy controls, with an unaltered elimination half-life. Patients who were classified as having moderate renal impairment (creatinine clearance of 40-60 ml/min) had a plasma AUC approximately double those with normal renal function and an unaltered elimination half-life, while those with a creatinine clearance <30 ml/min had a plasma AUC approximately four times greater than those with normal renal function and an elimination half-life three times longer. Patients should also avoid alcohol while using Jurnista® as studies have showed an increase in peak hydromorphone concentration (mean 30-35%) when taken in combination, being sufficiently significant to warrant a FDA alert.

The hydromorphone prolonged-release tablet, Jurnista® provides an alternative for long-acting opioid analgesia and has advantages of once-daily administration and high potency. However, due to its characteristics it must also be used with caution in certain populations, such as those renally and hepatically impaired, who are at increased risk of adverse effects.

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