

ONDANSETRON

Use

Ondansetron is now widely used to control post-operative nausea and vomiting. More recently it has also been shown to be of value in children with gastroenteritis severe enough to merit hospital referral

Pharmacology

Ondansetron first came on to the market in 1990, having been found by pharmacologists working for Glaxo to be a potent blocker of the receptors for the neurohormone 5-hydroxytryptamine in the gut and central nervous system (5HT₃). Initially it was only used (together with dexamethasone) to control the nausea and vomiting caused by stimulation of the vagus nerve when 5HT is released from enterochromaffin cells in the gut during chemotherapy and radiotherapy. Studies by cancer specialists found it to be more effective than metoclopramide (q.v.), and it is now also quite widely used to pre-empt post-operative vomiting (even though the manufacturer has not yet endorsed use in children less than two years old). More recently it has been shown to be of value in the management of the severe vomiting that occasionally accompanies acute gastroenteritis in young children (and the only drug for which there is objective evidence of efficacy). Only about 60% of the drug reaches the circulation when the drug is given by mouth because of first-pass uptake by the liver. The drug is then widely distributed in the body ($V_D \sim 2$ kg/l) before being metabolised in a range of different ways in the liver and, because of this, some have argued that a loading dose should probably be considered before starting chemotherapy. Repeat treatment should also be curtailed in patients with severe liver failure. The terminal half life is about 3 hours (and possibly a little less in young children). Metabolism in the first year of life does not seem to have been studied. A serious overdose can cause seizures and make respiratory support necessary, but recovery occurred within 24 hours in the only case reported to date.

Use in pregnancy

Ondansetron (10 mg every 6 hours) has occasionally been given during pregnancy to control severe nausea and vomiting (hyperemesis gravidarum). There is no evidence to suggest that it is teratogenic, and it seems to be less sedating than promethazine (q.v.). Lesser degrees of nausea are most commonly controlled by meclozine (q.v) which is available without prescription. Nothing is known about the use of ondansetron during lactation, and the drug's small molecular size makes some transfer likely.

Use in infancy

Pre-anaesthetic prophylaxis: Give a single pre-operative 150 microgram/kg oral or slow IV dose.

Severe gastroenteritis: A single 200 to 300 microgram/kg oral or slow IV dose has usually been used.

During emetogenic chemotherapy: Give 125 mg/kg shortly before treatment, and two further doses four and eight hours later. Consider giving dexamethasone as well. Adults are also often given aprepitant.

Drug interactions

The BNF has raised the possibility of an interaction with other drugs that can prolong the QT interval.

Supply and administration

2 ml ampoules containing 4mg of ondansetron cost £5.40. Take 2 ml and dilute to 20 ml with dextrose or dextrose saline to obtain a solution containing 200 micrograms/ml. Rapidly-dissolving 4mg tablets cost ~£3 each. A pack which, when reconstituted, provides 50 ml of a sugar-free, strawberry-flavoured, syrup containing 0.8 mg/ml of ondansetron, costs £36. The Zofran[®] syrup contains sodium benzoate.

References

See also the relevant Cochrane reviews ©

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