

What are the main indications for Ondansetron?

Ondansetron (Zofran[®]) is a serotonin 5-HT₃ receptor antagonist primarily used to prevent chemotherapy or radiation-induced nausea and vomiting. It does not have any effect on dopamine or muscarinic receptors. Ondansetron also appears to be effective in preventing postsurgical nausea and vomiting. There is some evidence that ondansetron is effective in bowel obstruction and renal failure, both of which are associated with excessive serotonin release.¹

What is the evidence for Ondansetron in managing nausea and vomiting in palliative care?

Although there is strong evidence for ondansetron in chemotherapy- and radiation-induced nausea and vomiting, there is paucity of evidence that any one antiemetic is superior to another for managing nausea and vomiting outside of this patient group. It is for this reason that an etiology-based approach is widely practiced in palliative care for managing these symptoms.²⁻⁴

What side effects should the patient expect?

Ondansetron is generally safe and well tolerated, even in the elderly. Common side effects include constipation, diarrhea, drowsiness, fatigue, headache and malaise. Serious side effects include QT prolongation (see below) and allergic reaction. Ondansetron is cleared by the liver; the recommended dose in hepatic impairment is 8 mg/day.¹

What major drug interactions are important to recognize?

- **QT Interval Prolongation^{1,5}**

Ondansetron has been associated with QT interval prolongation and post-marketing reports of torsade de pointes (TdP). If possible, avoid the combination of ondansetron with other medications that prolong the QT interval (i.e., antipsychotics, methadone, select antibiotics). ECG monitoring is recommended when the combination of said agents is required. When ECG monitoring is not feasible, monitor heart rate and rhythm compared to baseline as well as for the occurrence of unexplained syncope.

- **Serotonin Syndrome^{1,5,6}**

Concurrent use of opioids with other drugs that affect serotonin, such as ondansetron, has resulted in serotonin syndrome in some cases. Monitor patients for symptoms of agitation, hallucinations, tachycardia, fever, excessive sweating, shivering or shaking, muscle twitching or stiffness, trouble with coordination, nausea, vomiting, or diarrhea, as these are characteristic of serotonin syndrome. This syndrome typically occurs during the first few days after the affecting medication is started and/or when the dose is increased.

Summary

Despite lack of well-controlled studies for benefit in palliative care, ondansetron is generally accepted as a second- or third-line agent for refractory nausea in palliative care.⁷ Treatment with ondansetron is generally well tolerated and for those who respond, response rates are sustained over time.

References

1. Clinical Pharmacology [database online]. Tampa, FL: Elsevier/Gold Standard, Inc.; 2021.
2. Davis MP, et al. Palliative Medicine Study Group of the Multinational Association of Supportive Care in Cancer. A systematic review of the treatment of nausea and/or vomiting in cancer unrelated to chemotherapy or radiation. *J Pain Symptom Manage*. 2010; 39(4): 756-67.
3. Del Fabbro E. Assessment and management of nausea and vomiting in palliative care. In: UpToDate. Bruera E, Givens J, Savarese DMF, eds. Waltham, MA: UpToDate, Inc.; Updated October 21, 2020.
4. Hallenbeck J. PCNOW Fast Facts #: The Causes of Nausea and Vomiting (V.O.M.I.T.). May 2015. [Article link](#)
5. Benze G, et al. Treatment of nausea and vomiting with 5HT₃ receptor antagonists, steroids, antihistamines, anticholinergics, somatostatin antagonists, benzodiazepines and cannabinoids in palliative care patients. *Scherz*, 2012 Sept; 28(5):500-14.
6. Chow R, et al. PCNOW Fast Facts #401: Serotonin Syndrome in Palliative Care. August 2020. [Article link](#)
7. Weissman DE. PCNOW Fast Facts #25: Opioids and nausea. Updated May 2015. [Article link](#)