Written By: Julianne Orr, PharmD
Indiana University Health Simon Cancer Center

Positive Quality Intervention: Olanzapine (Zyprexa®) In Chemotherapy Induced Nausea and Vomiting

Description: This PQI will examine the use of olanzapine (Zyprexa®) in the treatment of chemotherapy induced nausea and vomiting (CINV).

Background: Olanzapine is an FDA approved atypical antipsychotic that blocks multiple neuronal receptors involved in nausea/vomiting pathways.[1] Olanzapine has been studied for breakthrough[2] CINV as well as prophylaxis of highly and moderately emetogenic regimens.[3-5] Additionally, olanzapine has been studied in replacement of NK1 receptor antagonists (ex. aprepitant) as well as in addition to standard triplet prophylaxis regimens which include NK1 receptor antagonists.[4-7] The results of these trials suggest olanzapine is at least as effective as aprepitant and combination olanzapine with aprepitant has led to promising reports of CINV control. Based on the results from these various studies, national guidelines (National Comprehensive Cancer Network guideline on Antiemesis) recommend olanzapine 5-10 mg PO daily as an option within prophylaxis regimens for highly emetogenic chemotherapy (HEC) and often moderately emetogenic chemotherapy (MEC) regimens. Clinically, lower doses of 5 mg and 2.5 mg have been used in patients where sedation may be a concern. Nausea and vomiting remain a common and difficult to manage side effect of chemotherapy despite prophylaxis. These symptoms can often lead to a decreased quality of life, dehydration, and malnutrition. Historically, patients have been prescribed dexamethasone along with a 5HT3 antagonist (ex. ondansetron) to prevent nausea and vomiting. For patients receiving HEC/MEC, a NK1 receptor antagonist, such as fosaprepitant, is added to the antiemesis regimen. Despite the use of these dual and triple agent preventative strategies as recommended by national guidelines, nausea and vomiting remains a significant complication of chemotherapy.

PQI Process: Upon receipt of an order for a HEC or MEC chemotherapy regimen:

- Screen for appropriate antiemesis medications:
  - Dexamethasone
  - 5HT3 Antagonist
  - NK1 Receptor Antagonist
  - +/- Olanzapine
- If olanzapine if not initially included in the orders, consider recommending the addition of olanzapine 5-10 mg by mouth daily days 1 through 4 of chemotherapy
- If the patient is elderly or over-sedated, consider using a lower dose upon initiation[8]
- Use caution when prescribing olanzapine with metoclopramide or haloperidol, as this combination may lead to a higher risk of extrapyramidal symptoms

Patient-Centered Activities:

- Patient Compliance
  - Encourage patients to take this medication each day, as prescribed
  - Compliance is particularly important for any patients receiving HEC/MEC regimens in the outpatient setting
- Patient Education
  - Explain CINV and the different medications that are being prescribed to help prevent nausea and vomiting
  - **Outline the reason patients take olanzapine on days 1 through 4 only***
  - Olanzapine may be administered without regard to meals
  - Review common side effects with the patient[9]

IMPORTANT NOTICE: NCODA has developed this Positive Quality Intervention platform. This platform is intended as an educational aid, does not provide individual medical advice, and does not substitute for the advice of a qualified healthcare professional. This platform does not cover all existing information related to the possible uses, directions, doses, precautions, warning, interactions, adverse effects, or risks associated with the medication. The materials contained in this platform do not constitute or imply endorsement, recommendation, or favoring of this medication by NCODA. NCODA does not ensure the accuracy of the information presented and assumes no liability relating to its accuracy. All decisions related to taking this medication should be made with the guidance and under the direction of a qualified healthcare professional. It is the individual's sole responsibility to seek guidance from a qualified healthcare professional. *Updated 3.3.23*

- Drowsiness
- Headache
- Disturbed sleep
- Increased appetite
- Constipation
- Extrapyramidal reaction
- Orthostatic hypotension

- Drowsiness will potentially diminish over time

**Some multiple day HEC regimens may call for more than 4 days of olanzapine*

References:

1. Tan L, Liu J, Liu X, et al. Clinical research of olanzapine for prevention of chemotherapy induced nausea and vomiting. J Exp Clin Cancer Res 2009; 28: 1-7.
2. Navari RM, Nagy CK, Gray SE. The use of olanzapine versus metoclopramide for the treatment of breakthrough chemotherapy induced nausea and vomiting in patients receiving highly emetogenic chemotherapy. Support Care Cancer 2013; 21: 1655-63.
3. Navari RM, Gray SE, Kerr AC. Olanzapine versus aprepitant for the prevention of chemotherapy induced nausea and vomiting: a randomized phase 3 trial. J Support Oncol 2011; 9: 188-95.
4. Mizukami N, Yamauchi, Koike K, et al. Olanzapine for the prevention of chemotherapy induced nausea and vomiting in patients receiving highly or moderately emetogenic chemotherapy: a randomized, double blinded, placebo controlled study. J Pain Symptom Manage 2014; 47: 542-50.
5. Abe M, Hirashima Y, Kasamatsu Y, et al. Efficacy and safety of olanzapine combined with aprepitant, palonosetron, and dexamethasone for preventing nausea and vomiting induced by cisplatin based chemotherapy in gynecological cancer. Support Care Cancer. E-pub ahead of print: 01 July 2015. DOI:10.1007/s00520-015-2829-z.
6. Passik SD, Navari RM, Jung S, et al. Phase I trial of olanzapine for the prevention of delayed emesis in cancer patients: A Hoosier Oncology Group study. Cancer Investigations 2004; 22(3): 383-388.
7. Navari A phase II trial of olanzapine, dexamethasone,and palonosetron for the prevention of chemotherapy induced nausea and vomiting: a Hoosier oncology group study. Support Care Cancer 2007; 15:1285–1291.
8. Hashimoto H, Yanai T, Nagashima K, et al. A double blind randomized phase II study of 10 versus 5mg olanzapine for emesis induced by highly emetogenic chemotherapy with cisplatin [abstract]. J Clin Oncol 2016; 34: Abstr 10111.
9. Olanzapine (Zyprexa®) package insert.