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Positive Quality Intervention: Chemotherapy-Induced Nausea and Vomiting

Description: This PQI will discuss optimal prevention and control of chemotherapy induced nausea and vomiting (CINV) which has been associated with improved adherence to oncolytic therapy.

Background: CINV remains one of the most debilitating toxicities associated with cancer therapy leading to poor compliance with further treatment, dehydration, metabolic imbalances, degeneration of self-care and functional inability, anorexia and decline in performance status.[1,2] The emetogenic potential of the regimen should be coupled with other risk factors such as age, sex, history of alcohol consumption, combined chemoradiation, previous tolerability of chemotherapy and anatomical location of tumor (ex. head and neck) to select an optimal antiemetic regimen. As much as 80% of CINV can be prevented with appropriate administration of antiemetics.[2]

PQI Process: Upon receipt of an order for a chemotherapy regimen:[1-6]

- Assess the antiemetic potential/Emetogenicity of therapy, patient risk factors, and disease state
  - High: NK1R antagonists + 5-HT3 receptor antagonists + dexamethasone ± olanzapine
  - Moderate: 5-HT3 receptor antagonists + dexamethasone ± NK1R antagonists
  - Low: 5-HT3-receptor antagonist or dexamethasone or phenothiazine or metoclopramide
- Evaluate drug-drug and drug-patient interactions to minimize adverse drug reactions (ex. benzodiazepine and phenothiazine dosing in elderly, olanzapine interactions (see **Olanzapine (Zyprexa®) In Chemotherapy Induced Nausea and Vomiting** PQI), dexamethasone dosing with fosaprepitant, etc.
- Ensure take home antiemetics have been prescribed and will be in possession of the patient once home (may require coordination with caretakers and dispensing pharmacy)
- Follow up with patients (who have moderate to high emetogenicity on day 2/3 of cycle 1) upon return for cycle 2 of chemotherapy and determine future plans as clinically appropriate:
  - Assess for adequate management and prophylaxis
  - Consider benzodiazepines for anticipatory nausea/vomiting
  - Determine the need to modify antiemetic regimen based on incidence of acute, delayed and breakthrough events

Patient-Centered Activities:

- Consider use of NCODA's CINV Assessment Tool to assist in patient discussion
- Provide Oral Chemotherapy Education (OCE) Supplemental Sheet
- Provide antiemetic counseling to patients and caretakers with written or graphic visual aids to easily guide drug selection at home, including:
  - When to initiate take home 5-HT3 receptor antagonists if a long acting agent has been administered with chemotherapy
  - Prioritizing/sequencing different agents of home antiemetic regimen for adequate control of CINV
  - Ensure a clear understanding of scheduled antiemetics such as dexamethasone or olanzapine
- Have patient verbalize how they plan to utilize their antiemetics at home
- Review common side effects (sedation, headache, constipation, extrapyramidal symptoms, etc.)

- Inform patients to drink plenty of fluids and avoid/minimize alcoholic beverages
- Ensure patients have contact information for the clinic and know when to contact the clinic

Drug therapy:* See Supplemental Information for dosing

- 5-HT3 receptor antagonists: ondansetron, granisetron, palonosetron
- NK1R antagonists:** aprepitant, fosaprepitant, rolapitant
- Glucocorticoids: dexamethasone
- Benzodiazepines: lorazepam
- Dopaminergic agents: prochlorperazine, olanzapine, chlorpromazine
- Combinations: netupitant/palonosetron, fosnetupitant/palonosetron
- Other: metoclopramide, scopolamine, promethazine, meclizine, dronabinol, olanzapine

*****Most commonly utilized agents, not inclusive of all agents
******Additional agents available as combination product

References:

1. National Comprehensive Cancer Network (NCCN). NCCN Clinical practice guidelines in oncology. https://www.nccn.org/professionals/physician_gls/pdf/antiemesis.pdf .
2. Tageja N, Groninger H. Chemotherapy-induced nausea and vomiting: an overview and comparison of three consensus guidelines. *Postgrad Med J.* 2016;92(1083):34-40.
3. Hesketh PJ, Kris MG, Basch E, et al. Antiemetics: American Society of Clinical Oncology Clinical Practice Guideline Update. J Clin Oncol 2017; 35:3240.
4. Roila F, Molassiotis A, Herrstedt J, et al. 2016 MASCC and ESMO guideline update for the prevention of chemotherapy- and radiotherapy- induced nausea and vomiting and of nausea and vomiting in advanced cancer patients. *Ann Oncol* 2016; 27:v119.
5. Fujii H, Iihara H, Ishihara M, et al. Improvement of adherence to guidelines for antiemetic medication enhances emetic control in patients with colorectal cancer receiving chemotherapy of moderate emetic risk. *Anticancer Res* 2013;33:5549–56.
6. Affronti ML, Schneider SM, Herndon JE 2nd., et al. Adherence to antiemetic guidelines in patients with malignant glioma: a quality improvement project to translate evidence into practice. *Support Care Cancer* 2014;22:1897–905.

Supplemental Information:
Select Therapies for Chemotherapy-Induced Nausea and Vomiting Prevention

Risk Category	Agent	Dosing on Day 1	Dosing on Subsequent Days
High Emetic Risk (>90%)	NK1R antagonist (one of the following)		
	Aprepitant	125 mg PO	80 mg PO Days 2 & 3
	Fosaprepitant	150 mg IV	
	Rolapitant*	180 mg PO or 166.5 mg IV	
	PLUS		
	5-HT3 antagonist (one of the following)		
	Palonosetron	0.5 mg PO or 0.25 mg IV	
	Granisetron	2 mg PO or 1 mg IV	
	Ondansetron	8 mg PO or IV	
	PLUS		
	Dexamethasone	12 - 20 mg PO or IV	8 mg PO or IV daily Days 2 to 4 (chemotherapy dependent)
	PLUS		
	Olanzapine	5 – 10 mg PO	5 – 10 mg PO daily Days 2 to 4
OR			
	Netupitant + palonosetron or Fosnetupitant + palonosetron	Once	
	PLUS		
	Dexamethasone	12 - 20 mg PO or IV	8 mg PO or IV daily Days 2 to 4 (chemotherapy dependent)
	PLUS		
	Olanzapine	5 – 10 mg PO	5 – 10 mg PO daily Days 2 to 4
Moderate Emetic Risk (10 to 30%)	5-HT3 antagonist (one from high risk chart)		
	PLUS		
	Dexamethasone	8 - 20 mg PO or IV	8 mg PO or IV daily Days 2 to 4 (chemotherapy dependent)
Low Emetic Risk (10%)	Dexamethasone		4-8 mg PO or IV
OR			
	5-HT3 antagonist (one from high risk chart)		
OR			
	Phenothiazine-type drug		

All patients should have supportive antiemetic therapy at home
Select patients with minimal risk for CINV may not require any treatment

*Post marketing data show anaphylaxis, anaphylactic shock and other serious hypersensitivity reactions