CHEMOTHERAPY-INDUCED NAUSEA AND VOMITING FOLLOWING PROPHYLACTIC 5-HT$_3$-RA ANTIEMETIC TREATMENT IN HIGHLY EMETOGENIC CHEMOTHERAPY

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Background

- Chemotherapeutic agents are categorized into 4 emetic risk groups based on the guidelines of the National Comprehensive Cancer Network: high, moderate, low, and minimal.
- Chemotherapy-induced nausea and vomiting (CINV) is a major adverse effect of chemotherapy and has been associated with significant healthcare utilization and treatment costs.[1,2]
- Previous research has show that palonosetron, when compared with granisetron, ondansetron, and dolasetron, the other 5-hydroxytryptamine-3 serotonin receptor antagonists (5-HT$_3$-RAs), is associated with reduced CINV-related utilization of inpatient and outpatient services.[3,4]

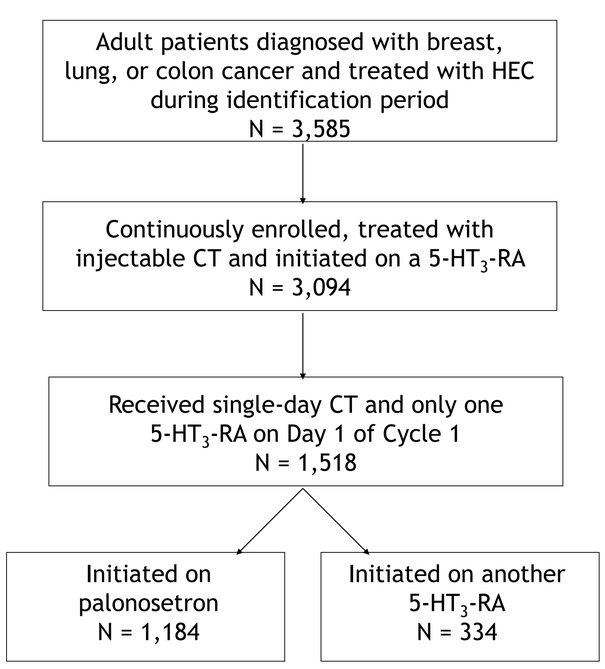
Study Objectives

To compare the risk of CINV following prophylactic use of palonosetron vs. another 5-HT$_3$-RA in patients treated with a highly emetogenic chemotherapy (HEC) regimen.

Methods

- Retrospective cohort analysis using HIPAA-compliant claims from the i3/Ingenix LabRx database.
- Study included continuously enrolled adult patients diagnosed with breast, lung, or colon cancer who were newly treated with a single-day HEC regimen and who received a prophylactic 5-HT$_3$-RA between 4/1/2008 and 3/31/2009.
- Index date was Day 1 of chemotherapy, and patients were followed until the beginning of the next cycle of chemotherapy or up to 30 days postindex.
- Exclusion criteria included any chemotherapy in the 6 months before the index date or more than one 5-HT$_3$-RA on the index date.
- CINV was defined as a rescue antiemetic infusion or a medical claim with a primary diagnosis of nausea and vomiting (ICD-9-CM 787.0x) or volume depletion (276.5x) between Day 1 and the end of follow-up.
- A logistic regression model adjusting for baseline variables was conducted.

Patient Identification & Stratification



Results

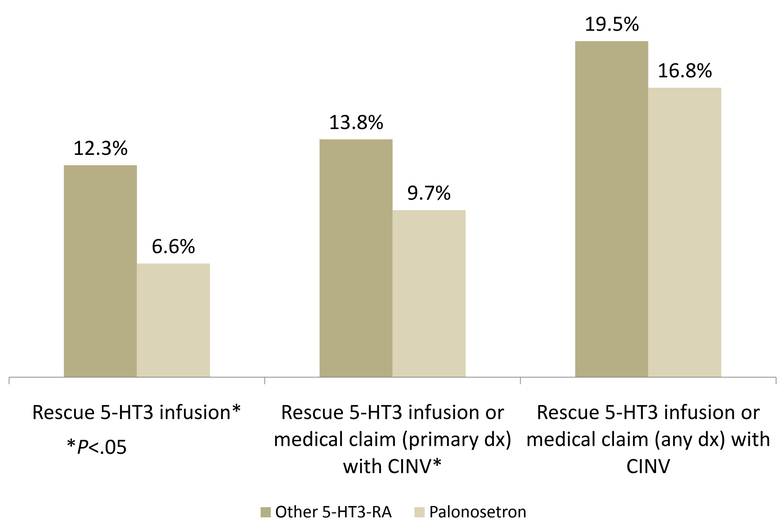
Demographic Characteristics

	Other 5-HT$_3$-RA	Palonosetron	*P* Value
N (%)	334 (22.0)	1,184 (78.0)	
Age, mean (SD),y	53.1 (9.3)	51.9 (9.90)	0.046
Female, no. (%)	324 (97)	1142 (96.5)	0.623
Cancer type*, no. (%)			
Breast cancer	313 (93.7)	1126 (95.10)	0.313
Lung cancer	24 (7.2)	75 (6.3)	0.578
Colon cancer	4 (1.2)	22 (1.9)	0.411
Charlson comorbidity index, mean (SD)	5.6 (3.1)	5.8 (3.2)	0.510
No. of chronic conditions, mean (SD)	4.0 (1.9)	4.0 (1.8)	0.522
Use of other antiemetics†, no. (%)	169 (50.6)	790 (66.7)	<.001
Dexamethasone	108 (32.3)	453 (38.3)	0.048
NK1	87 (26)	573 (48.4)	<.001
Methylprednisolone	3 (0.9)	10 (0.8)	0.925
Lorazepam	57 (17.1)	251 (21.2)	0.097
Length of follow up‡, days, mean (SD)	21.6 (3.6)	21.2 (3.4)	0.035

*Some patients had more than one type of cancer
†On or ≤14 days before index date
‡ Time from index date to the next cycle of chemotherapy or up to 30 days

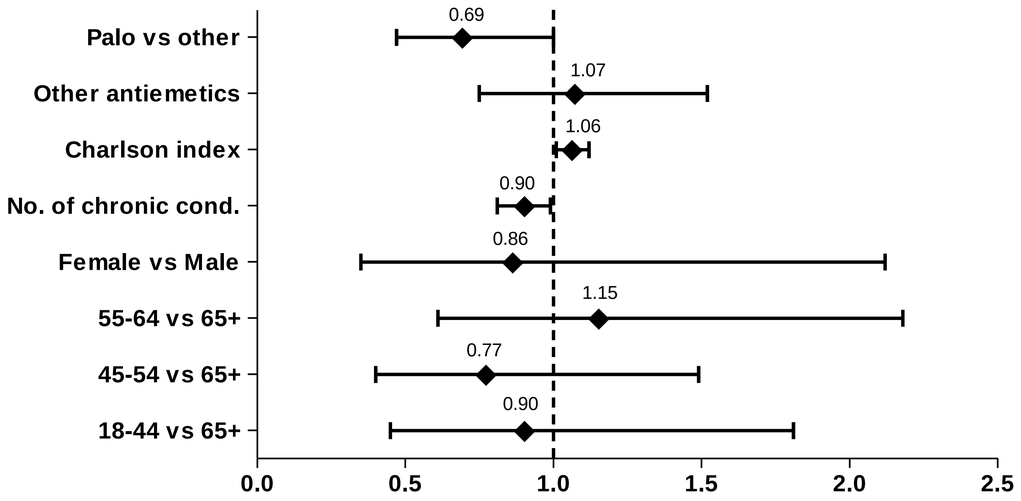
- A total of 1,518 patients were identified. Of these, 1,184 (78.0%) initiated therapy with palonosetron and 334 (22.0%) with another 5-HT$_3$-RA.
- The palonosetron group was younger (mean 53.1 vs. 51.9 years, *P* = .046), but no differences were found in gender or cancer type when compared to those treated with another 5-HT$_3$-RA.

Unadjusted Rate of CINV in First Cycle of Chemotherapy



- In unadjusted comparisons, patients who received palonosetron were significantly less likely than those who received another 5-HT$_3$-RA to require a rescue medication infusion on any day following the first day of chemotherapy (6.6% vs. 12.3%, respectively, *P* = .001).
- Patients who received palonosetron were significantly less likely than those treated with another 5-HT$_3$-RA to have CINV, which was defined by primary ICD-9-CM code (9.7% vs. 13.8%, respectively, *P* = .033).

Risk of CINV in the First Cycle of Chemotherapy: Adjusted* Odds Ratio and 95% Confidence Interval



•Adjusted by age, gender, region, no. of chronic conditions, Charlson comorbidity index, and other antiemetic use.
Palo = palonosetron.

- After controlling for between-group differences with logistic regression, the odds ratio of CINV among palonosetron users vs. controls was 0.69 (95% CI: 0.47-1.00, *P* = .049).

Conclusions

- Overall, this study found rates of CINV similar to those found in other retrospective studies.[1,2]
- In both adjusted and unadjusted analyses, patients treated with palonosetron had significantly fewer CINV-related events than patients treated with other 5HT$_3$-RAs. These results are consistent with the effect seen in clinical trials and other real-world studies.[3-5]
- The strengths of this analysis include the use of a large database that included integrated medical and pharmacy claims.
- Antiemetic treatment was clearly differentiated by focusing on single antiemetic therapy and single-day chemotherapy.
- The data in this study were derived from all major regions of the country and represented a wide variety of practice settings.
- Limitations include the lack of inclusion of later cycles of chemotherapy, which we intend to examine in future studies.
- Limitations common to all claims studies include the focus on commercially insured patients, lack of detailed clinical data, and potential for miscoding.

References

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2. Shih et al. *Cancer* 2007
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5. Likun et al. *Oncologist* 2011

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