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Original Contributions

OLIGOANTIEMESIS OR INADEQUATE PRESCRIPTION OF ANTIEMETICS IN THE EMERGENCY DEPARTMENT: A LOCAL AND NATIONAL PERSPECTIVE

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☐ **Abstract—Background: Nausea and vomiting are common, but prevalence of antiemetic use in ED patients is unknown. Objectives: We determined the use of antiemetics in emergency department (ED) patients presenting with nausea and vomiting (NV). Methods: We conducted a retrospective chart review of ED patients presenting to a local ED with NV and analyzed data from the National Hospital Ambulatory Care Survey for similar patients to determine the frequency of administration of antiemetics in the ED. Results: Of 3876 patients presenting to a local ED with NV in 2014, 2637 (68% [95% confidence interval (CI) 67–69%]) received an antiemetic. Of an estimated 11.3 million U.S. ED visits for NV in 2011 (the latest year available), antiemetics were prescribed in 56% (95% CI 53–59%). Females, older patients, and those with vomiting were more likely to receive antiemetics. Use of antiemetics was associated with reduced admissions in the single institution (odds ratio [OR] 0.62, 95% CI 0.52–0.74), but not in the national database (OR 1.08, 95% CI 0.74–1.60). Conclusions: Many patients presenting with NV do not receive antiemetics while in the ED. Effort should be made to further study and reduce the phenomenon of undertreatment of nausea or vomiting, coined "oligoantiemesis."**

☐ **Keywords—vomiting; nausea; antiemetics; emergency department**

INTRODUCTION

Nausea and vomiting are some of the most common reasons for emergency department (ED) visits. A study based on the Nationwide Emergency Department Sample for 2007 estimated that there were 1.6 million annual ED visits for nausea and vomiting (1). Based on these data, the estimated charges incurred by nausea and vomiting were $2.4 billion. Although identification and treatment of the underlying condition(s) leading to nausea and vomiting is paramount, this should not prevent or delay the alleviation of suffering associated with these symptoms. Indeed, antiemetic medications are among the most commonly prescribed agents in the ED (2). For some patients, the amount of suffering from nausea and vomiting even exceeds that for pain.

Although use of analgesia in patients with similarly subjective painful conditions has been widely studied and reported, there are few published data regarding the use of antiemetics in ED patients with nausea and vomiting (3,4). Management of nausea and vomiting may reduce patient suffering, prevent further vomiting, and allow oral rehydration, reducing the need for extended ED visits and hospital admissions.

The overall goal of this study was to determine the use of antiemetics in ED patients with nausea and vomiting at both the local and national levels. The specific goals were twofold: 1) to retrospectively determine the use of antiemetics at a single large academic medical institution; 2) to estimate trends in the use of antiemetics in ED patients with nausea and vomiting using a large nationally representative database to see if the local practices were representative of national practices. Based on the fact that inadequate prescription of

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analgesia ("oligoanalgesia") is common, and that both pain and nausea are subjective and hard to measure, we hypothesized that a large proportion of ED patients with nausea and vomiting would not receive any antiemetics while in the ED.

MATERIALS AND METHODS

Study Design

A standardized retrospective chart review of all ED patients presenting to a single ED with nausea and vomiting was conducted to determine the local use of antiemetics. A secondary analysis of a large nationally representative database (National Hospital Ambulatory Medical Care Survey [NHAMCS]) for the year 2011, the latest database available, was also conducted to address the national use of antiemetics. Additionally, trends over time of antiemetic use were examined using 2006–2011 NHAMCS data. The local study was approved by the Institutional Review Board with a waiver of informed consent due to the retrospective study design. The secondary analysis of the NHAMCS database does not require institutional review board approval because it is anonymous and publicly available.

Setting

The local retrospective study was conducted at a suburban, academic, tertiary care hospital with an annual ED census of approximately 100,000. There were no standing antiemetic protocols or quality improvement efforts at the medical center during the study period.

Study Subjects

Patients in both studies were included if they presented to the ED with a chief complaint of nausea or vomiting, or both. For the single institution study, patients were included if any reason for visit (up to three reasons available) included "nausea" or "vomiting." For the NHAMCS data, patients were included if any "broad reason for visit" was "nausea" or "vomiting." Up to three reasons for visit were available in each database. Reasons in the single institution database are entered as free text, whereas those in the NHAMCS database have specific codes.

Brief Description of the NHAMCS

As described by its developers, "The NHAMCS is an annual, national probability sample of ambulatory visits made to non-federal, general, and short-stay U.S. hospitals conducted by the Centers for Disease Control and Prevention, National Center for Health Statistics (NCHS). Although the survey includes visits to selected ambulatory care departments, this analysis focuses solely on the visits to hospital emergency departments. The multi-staged sample design is comprised of three stages for the ED component: 1) 112 geographic primary sampling units (PSUs); 2) approximately 480 hospitals within PSUs; and 3) patient visits within emergency service areas" (5). Per NHAMCS protocol, trained hospital staff members abstract ED visit data using a structured data entry form during 4-week data periods randomly assigned for each sampled hospital. The sampled data are extrapolated to national estimates through use of assigned patient visit weights, which account for probability of visit selection, nonresponse, and ratio of sampled hospitals to hospital universe.

Measures

Standardized abstraction of demographic and clinical data from the medical records was performed by trained investigators using a data collection form and following recommended methods for medical chart review (6,7). Data collected included age, sex, race, ethnicity, chief complaint, medical history, and recent use of antiemetic agents. Data from the NHAMCS were downloaded from the publicly available Web site.

Study Outcomes

The primary outcome was whether or not patients received any antiemetic while in the ED. Secondary outcomes were administration of intravenous (i.v.) fluids, hospital admission, and ED length of stay (LOS). Agents classified as antiemetics included 5HT3 antagonists (e.g., ondansetron), dopamine antagonists (e.g., metoclopramide), and H1 receptor antagonists (e.g., promethazine).

Data Analysis

For all studies, descriptive statistics were summarized as means and the percentages frequency of occurrence for continuous and categorical, respectively, with 95% confidence intervals (CIs). Univariate (*t*-tests, analysis of variance, chi-squared tests) and multivariate analyses (logistic regression) were used to determine the association between potential predictor variables and administration of antiemetics. Similarly, logistic and linear regression were used to determine the association between antiemetic use and hospital admission and ED LOS, respectively. A p value of < 0.05 was considered statistically significant. Data were analyzed with SPSS for Windows version 23 (SPSS Inc., Chicago, IL).