The prevalence of carcinoid tumors of the stomach in the USA: A population-based study

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INTRODUCTION: Most carcinoid tumors occur in the GI tract. Epidemiologic studies evaluating gastric carcinoid (GC) tumors were limited by small sample size. Our aim was to obtain an epidemiologic survey of GC tumors using population-based data in order to identify the prevalence and underlying associations.

METHODS: A commercial database (Explorys Inc, Cleveland, OH), an aggregate of electronic medical records from 26 major integrated US healthcare systems, was used. We identified all patients aged 18 and older who were diagnosed with gastric carcinoid tumors between 1996 and 2018 based on Systematized Nomenclature Of Medicine - Clinical Terms (SNOMED-CT) and evaluated the prevalence and the number of annual inpatient admissions with GC. We also performed a descriptive, age-, sex- and year-based distributions and to identify associations. Annual inpatient admissions trend was reviewed using the National Inpatient Sample (NIS) database 2008-2014 where all patients with GC were identified.

RESULTS: Of the 62,801,700 individuals in the database, 1,590 were identified to have GC tumors with prevalence of 233/100,000. Individuals with GC tumors were more prevalent to be females (OR: 1.43; 95% CI 1.30 to 1.59, P < 0.0001), elderly (age >65) [OR: 4.26; 95% CI 3.56 to 4.70, P < 0.0001], Caucasians [OR: 2.18; 95% CI 1.95 to 2.44, P < 0.0001], smokers (OR: 3.01; 95% CI 2.61 to 3.47, P < 0.0001), with history of alcohol use [OR: 3.01; 95% CI 2.49 to 3.36, P < 0.0001], diabetes mellitus (DM) [OR: 9.76; 95% CI 8.84 to 10.78, P < 0.0001], psychiatric illness (OR: 12.02; 95% CI 10.04 to 141.99, P < 0.0001), obesity (OR: 6.38; 95% CI 5.74 to 71.0, P < 0.0001), family history of cancer [OR: 8.86; 95% CI 7.82 to 10.55, P < 0.0001], and multiple endocrine neoplasia type 1 [OR: 900.01; 95% CI 576.22 to 14057, P < 0.0001] (Figure 1). Prevalence in the past 5 years is on the rise in the Explorys database (Figure 2). Of the study group, 40 (3%) had total gastrectomy, 140 (9%) had prophylactic total gastrectomy, and 180 (13%) had surgical excision of the tumor. Using NIS database, we identified total of 53,284,476 inpatient admissions between 2008 and 2004 of which 1,334 were diagnosed with GC. The trend analysis showed that the number of annual inpatient admissions with GC is also gradually increasing as shown in Figure 3 (P < 0.0001).

CONCLUSION: This is the largest epidemiologic study evaluating the prevalence of GC tumors. We estimated the prevalence rate of GC tumors to be 233/100,000. The overall prevalence is rising with increase in the annual admissions as well.

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Abstracts S677

1207

Differences of Gastric Cancer Characteristics Between With and Without Helicobacter pylori Eradication

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INTRODUCTION: Although the rate of gastric cancer (GC) after Helicobacter pylori (H. pylori) eradication has gradually increased over time, the features of GC following eradication remain to be examined. In this study, we investigate the clinicopathological features of GC following eradication in comparison with those of GC with H. pylori infection.

METHODS: 50 subjects with GC following eradication (HP-) group and 151 patients with GC with H. pylori infection (HP+) group were enrolled in this study. Clinicopathological features, such as age, gender, endoscopic atrophy, tumor form, location, depth of invasion, histology, were assessed. The manifestation of GC was further evaluated using immunohistochemistry of Ki-67, CDX22, p53, claudin3, E-cadherin, and In situ hybridization for Epstein-Barr virus (EBV).

RESULTS: Macroscopic analysis revealed a significantly higher ratio of depressed type/elevated type in HP+ group compared with HP- group (30/18 vs 67/77, P = 0.041). Tumor size was significantly greater in HP+ group compared with the HP- group (13.02 ± 7.01 vs 16.3 ± 11.12, P = 0.0019). The gastric mucin phenotype was more predominant in HP+ group compared with HP- group, and the proportion of CDX2 positive cases was lower in HP+ group (8 out of 18, 44.4%) compared with HP+ group (18 out of 19, 94.7%) (P = 0.00082). Ki-67 labeling index was significantly lower in HP+ group (32.05 ± 22.15) compared with the HP+ group (79.20 ± 148.7, P < 0.0001). No patient in HP+ group showed significant expression of EBV infection.

CONCLUSION: The clinicopathological characteristics of GC following H. pylori eradication differ from those of GC in patients with H. pylori infection in morphology, mucin phenotype, and proliferation rate. It is necessary to be careful about these differences in GC screening.

1208

Contemporary Prevalence and Predictors of Helicobacter pylori Infection in a U.S. Population

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INTRODUCTION: Gastric-emptying scintigraphy (GES), routinely used to measure gastric emptying, is an essential tool to diagnose gastroparesis. An accurate diagnosis of gastroparesis relies upon the GES being performed according to a validated protocol. Jointly published guidelines for gastric-emptying study have been available for over a decade; however, the extent to which these guidelines are adhered to is unknown. This study aimed to assess national compliance with established GES protocol guidelines.

METHODS: We developed a questionnaire addressing key protocol measures outlined in the published Procedure Guideline for Adult Solid-Meal Gastric Emptying Study 3.0. We developed a questionnaire addressing key protocol measures outlined in the published Procedure Guideline for Adult Solid-Meal Gastric Emptying Study 3.0. We did not perform a survey in a national population, but rather in a small group of MI in academic centers.

RESULTS: Of the 65 MI respondents, 49 (40.4%) were academic/training medical centers. The mean number of annual GES procedures was 199.9 (range, 5 to 2000 GES/year). On average, MI performed 64% (33/52) of protocol measures according to guidelines while academic medical centers performed 61% (31/52) of protocol measures according to guidelines. Only 59% of MI and 70% of academic medical centers met 42% of MI reported having performed prior to the validated 4-hour interval. Only 16% of MI test blood glucose levels prior to GES while 71% cancel or reschedule GES if blood glucose levels are above the validated cut-off. 68% of MI ask patients if they take narcotic medications. 49% require that patients stop taking narcotic medications at least two days prior to the GES. Only 45% of MI perform GES while adhering to 3 critical measures: validated study duration; controlling blood glucose levels; and properly restricting medication use.

CONCLUSION: Low compliance with GES protocol guidelines, even among academic medical centers, raises the likely possibility of misdiagnosis and thus improper management of upper gastrointestinal symptoms. These results highlight a need for increased awareness of protocol guidelines.

1209

Associations of demographic and lifestyle predictors with Helicobacter pylori infection. Odds ratios (OR) and 95% confidence intervals (CI) reported.

Table 1: Associations of demographic and lifestyle predictors with Helicobacter pylori infection. Odds ratios (OR) and 95% confidence intervals (CI) reported.

Age

Male

Ethnicity/Race

BMI (kg/m²)

Current smoking status

Never smoked

Current smoker

Fever smoker

Alcohol drinking status

Never drink

Current drinker

Current smoker

Fever smoker

Medication use

PPI use

H2RA use

Axiol use

Nicotine replacement therapy