Influence of Patients’ Ethnicity on the Gastric Biopsy Sampling Patterns

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Background

Although the Sydney System protocol requires separate biopsy sampling from antrum, incisura, and corpus, less than 4% of US endoscopists adhere to these recommendations.1 There are significant differences in the prevalence of H. pylori and gastric preneoplastic lesions amongst the major ethnic groups in the US. These differences tend to parallel the reported incidence rates of gastric cancer in the ancestral countries. It is unclear whether US gastroenterologists serving multicultural populations are aware of and take into consideration their patients’ ethnic origin in the approach to the prevention and early detection of gastric cancer. Specifically, it is unknown whether they adjust their biopsy sampling practice for the maximal detection of preneoplastic gastric lesions in these groups.

Aims

In a previous nationwide study2 we determined that compared to non-Asians, US residents of East Asian ancestry had a greater prevalence of preneoplastic lesions in the gastric corpus, where they are the most predictive of gastric cancer risk. These patients were also more likely to have biopsies from the gastric corpus, suggesting that endoscopists were aware of their increased risk and were acting appropriately. Thus, we designed a study to evaluate the gastric biopsy sampling patterns amongst US gastroenterologists who serve residents from various ethnic backgrounds, including a great proportion of East Asians.

Study Design and Methods

From a large national pathology database we extracted all patients who had gastric mucosal biopsies between 1.2008 and 8.2013 in selected US endoscopy practices that provide care to large proportions of patients of East Asian origin. We then stratified patients into the following groups:
- Korean
- Chinese
- Vietnamese
- Non East Asians (including Caucasians, African-Americans, Hispanics, and any US residents not specifically identified with any of the three East Asian groups)
- There were rare patients of Japanese, Cambodian, Laotian, Burmese, Malay, and Indonesian origin. These were excluded from the analysis.

End-points

The following parameters were used as end-points:
- Separate biopsies from antrum and corpus ("Sydney System compliant")
- At least one separate biopsy sample from the corpus, irrespective of antrum sampling
- We also recorded the prevalence of:
  - Active H. pylori infection (organisms demonstrated in gastric biopsy specimens by either immunohistochemical or histochemical staining)
  - Metaplastic atrophy anywhere in the stomach
  - Intestinal Metaplasia (IM) and atrophy in the gastric corpus.

Results

There were 8,865 Koreans (median age 61 years; 42% male), 7,651 Chinese (median age 55 years; 45% male), 2,097 Vietnamese (median age 54 years; 44% male), and 27,309 non-Asians (median age 56 years; 41% male).

Figure 1, below, shows that the prevalence of H. pylori was highest in the Chinese and Vietnamese (20%) each, followed by the Koreans (14%) and the non-Asians (10%). IM was highest in Koreans (20%) and lowest in non-Asians (5%).

Corpus IM was detected in 5.5% of Koreans (OR 6.22 95%CI 5.32-7.25, compared to non-Asians), 2.4% of Chinese, 1.1% of Vietnamese, and 0.9% of non-Asian subjects.

Chinese and Korean patients were the most likely to have separate biopsies from antrum and corpus, with OR of 4.46 (95%CI 4.20-4.74) for the Chinese, and 3.13 (2.94-3.25) for Koreans, compared to non-Asians.

Figure 1 – Prevalence of H. pylori and Metaplastic Atrophy (IM) in four US groups. The gray bar (Bx A+C) shows the percentage of patients who had separate biopsies from antrum and corpus. The brown bar (Bx Corpus) represents the percentage of those who had any sampling from the corpus.

Study Highlights

- Appropriate biopsy sampling from antrum and corpus is crucial for the detection of pre-neoplastic lesions in the stomach. Metaplastic atrophy in the oxyntic mucosa is the most accurate predictor of gastric cancer risk.
- Gastroenterologists whose practices include substantial proportions of Chinese and Korean patients in the US are well aware of these patients’ increased gastric cancer risk and take appropriate sampling in a high proportion of patients.
- Vietnamese patients had a lower prevalence of IM than other East Asians, in spite of their high prevalence of H. pylori. When seen in these practices, Vietnamese patients were less likely than even non-Asians to have antral and corpus biopsies.

References

2. Choi CE, Turner K, Genta RM. The Prevalence of Gastric Premalignant Lesions in East Asians and Hispanics in the United States Relates to the Incidence of Gastric Cancer in Their Corresponding Ancestral Countries. ASGE Poster #Sa1630.