# Barrett's Esophagus is Not Rare in Asian Patients Who Have Esophageal Biopsies Taken in the United States

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## Background

National differences in the prevalence of Barrett's esophagus (BE) have been described, but it is not clear whether these differences are real (due to differences in genetic or environmental factors) or spurious (due to national differences in endoscopic landmarks used by physicians to identify BE, in endoscopic biopsy protocols, or in histological criteria for BE).

Although BE is widely regarded as rare in Asia, there is wide variation in the reported prevalence of BE in Asian countries (range 0.06% to 19.9%) for reasons that remain unclear.

We hypothesized that using a US national database containing patients of different ethnicities who had endoscopy performed in the US - with esophageal biopsies evaluated by a group of gastrointestinal pathologists in the US – would minimize confounding due to national differences in physician factors relating to the diagnosis of BE.

## Aims

We designed a study to assess the prevalence of BE in patients of different ethnicities who had:

1. Endoscopy with esophageal biopsies performed in a US endoscopy center.
2. Esophageal biopsies evaluated by a single group of gastrointestinal pathologists who use standardized US criteria for the diagnosis of Barrett's Esophagus.

## Study Design and Methods

From a large national pathology database, which includes demographic, clinical, endoscopic and histopathological data, we extracted subjects who had an EGD with esophageal biopsies between 1.2008 and 12.2013.

We then stratified patients into the following groups:

- East Asian (including Korean, Chinese, and Vietnamese)
- Japanese
- Indian (including Indian, Pakistani, and Bangladeshi)
- Other Americans (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 Cambodian, Laotian, Burmese, Malay, and Indonesian origin, and others of undetermined ethnicity. These were excluded from the analysis.

### *Histopathologic criteria for the diagnosis of Barrett's Esophagus*

Barrett's Esophagus was diagnosed when biopsy specimens designated as originating from the lower esophagus contained columnar epithelium with intestinal metaplasia (goblet cells).

Specimens with no goblet cells and those showing minimal metaplasia located exclusively at the squamocolumnar junction in specimens designated as "gastroesophageal junction" or "cardia" were not diagnosed as BE.

## Results

We identified a total of 490,444 unique patients who had esophageal biopsy specimens including:

- 20,400 Hispanics (median age 54 years; 43% male)
- 5,132 East Asians (median age 57 years; 46% male)
- 498 Japanese (median age 59 years; 48% male)
- 1,169 Indians (median age 51 years, 55% male)
- 462,146 Other Americans (median age 57 years; 47% male).

Figure 1 depicts the prevalence of BE in each group with the respective odds ratios (OR). Compared to Other Americans, all other groups had a lower prevalence of BE, with the lowest in East Asians.

Patients of Japanese ancestry, however, had a prevalence of BE virtually identical to that of other Americans.

| Ethnicity | Age | Total | BE | % BE | OR (95% CI) |
|---|---|---|---|---|---|
| Other US | 57 | 462,146 | 55,565 | 12.0% | 1 |
| Hispanic | 55 | 20,400 | 1,539 | 7.5% | 0.71 (0.68 – 0.76) |
| Japanese | 59 | 498 | 58 | 11.6% | 1.16 (0.88 – 1.52) |
| East Asian | 57 | 5,132 | 288 | 4.7% | 0.49 (0.44 – 0.56) |
| Indian | 51 | 1,169 | 65 | 4.7% | 0.52 (0.40 – 0.67) |

**Table 1** – Prevalence of Barrett's Esophagus in five groups of US residents. Age represents the median age of each group. BE= Barrett's Esophagus; OR = Odds Ratio; CI = Confidence Interval.

## Study Highlights

- Compared to Other Americans, we found a significantly lower prevalence of BE in Hispanics, East Asians, and Indians; the prevalence in Japanese also was lower, but did not reach statistical significance.
- Although it is not surprising that the prevalence of BE was lower in Asian patients, the prevalence (approximately 50% of that in Other Americans) appears to be considerably higher than would be anticipated from most reports from Asian countries.
- Patients of Japanese ancestry showed no significant differences from other Americans. This may be related to the fact that many of our Japanese patients were likely to be second or third generation Americans and, therefore, a longer exposure to US environmental factors may have taken place.

## References

1. Chang CY, et al. Current status of Barrett's esophagus research in Asia. *J Gastroenterol Hepatol.* 2011;26(2):240-6.