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No Increased Risk of Gastric Cancer among Immigrants in the United States: An Analysis of the National Health Interview Survey 2021

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1. Abstract

1.1. Background: There are regional differences in gastric cancer worldwide, with higher incidence in certain countries.

1.2. Aims: To compare the risk of gastric cancer between immigrants and individuals born in the United States (US).

1.3. Data and Methods: All adults in the National Health Interview Survey in 2021 were included. The rate of gastric cancer was calculated separately for immigrants and those born in the US. The risk of gastric cancer associated with immigrant status was estimated using multivariate logistic regression, controlling for age, sex, race, education and smoking.

1.4. Results: The rate of gastric cancer was similar between immigrants (n=4,706) and those born in the US (n=23,789) (0.064% vs 0.067%). In multivariate logistic regression, the risk of gastric cancer was similar between immigrants and those born in the US (odds ratio [OR] 1.026, 95% confidence interval [CI] 0.227-4.641). The two significant predictors of gastric cancer included age (OR 1.084, 95% CI 1.040-1.129) and college education (OR 0.234, 95% CI 0.067-0.818). Sensitivity analyses confirmed the robustness of these findings.

1.5. Conclusions: Compared to those born in the US, immigrants are not at higher risk for gastric cancer. Older age and less education are associated with higher risk for gastric cancer.

2. Introduction

Gastric cancer incidence differs worldwide, with higher incidence in eastern Asian, mountainous Latin America, and areas in Eastern Europe and Russia and H pylori infection as the dominant risk factor in the carcinogenesis cascade [1-4]. In this population-based study using the 2021 National Health Interview Surgery (NHIS), we compared the rate of gastric cancer among immigrants versus individuals born in the United States (US). We also used multivariate logistic regression to estimate the relative risk of gastric cancer for immigrants, controlling for demographics and other risk factors for gastric cancer.

3. Data and Methods

The NHIS is the principal source of information on the health of the civilian noninstitutionalized population of the US. We used the 2021 NHIS and examined the rate of gastric cancer among immigrants and those born in the US. The other variables of interest include age, sex, race, education, and smoking status.

The Student's t-test and chi-square test were used for continuous and categorical variables respectively. The multivariate logistic model was used to estimate the relative risk of gastric cancer for immigrants compared to those born in the US, controlling for age, sex, race, education, and smoking status.

4. Results

There were 29,482 adults in the 2021 NHIS and 19 adults reported the diagnosis of gastric cancer. Excluding those without immigrant status reported, the rate of gastric cancer was similar between immigrants (n=4,706) and those born in the US (n=23,789) (0.064%

vs 0.067%, p>0.05) (Table 1). Compared to those born in the US, immigrants were younger, more likely nonwhite, less likely ever smoked, and less likely attended college. There was no difference in percentage of females between the two groups.

In multivariate logistic regression, there was no effect of immigrant status on the risk of gastric cancer (odds ratio [OR] 1.026, 95% confidence interval [CI] 0.227-4.641). The two significant predictors of gastric cancer included age (OR 1.084, 95% CI 1.040-1.129) and college education (OR 0.234, 95% CI 0.067-0.818). The other variables including sex, race and smoking were not significant. Sensitivity analyses including adults with missing information on sex, race and smoking confirmed the robustness of the above findings (Table 2).

Table 1: Characteristics and Rate of Gastric Cancer by Immigrant Status.

	Immigrants (n=4,706)	Individuals Born in the US (n=23,789)
Age (mean (SD)), years***	50.0 (16.5)	53.0 (18.7)
Female (%)	55.7	54.4
Non-White (%)***	49.8	16.4
Ever Smoked (%)***	24.9	40.5
College Education (%)**	49.9	52.1
Gastric Cancer (%)	0.064	0.067

Notes: There were 2,607 individuals with missing values for at least one variable. SD = standard deviation. **p<0.01; ***p<0.001.

Table 2: Risk of Gastric Cancer in Multivariate Logistic Regression Analysis (n=26,875).

	Odds Ratio (95% Confidence Interval)
Age***	1.08 (1.04, 1.13)
Female	1.13 (0.43, 3.00)
Non-White	1.03 (0.29, 3.71)
Ever Smoked	1.41 (0.54, 3.67)
College Education*	0.23 (0.07, 0.82)
Immigrant	0.98 (0.22, 4.41)

Notes: The 2,607 individuals with missing values for at least one variable were excluded. *p<0.05; ***p<0.001.

5. Discussion

In this population-based analysis of adults in the US in 2021, we found that older age and less education are risk factors for gastric cancer and that immigrants are at a similar risk for gastric cancer compared to those born in the US. Our research confirmed the current practice of not routinely screening asymptomatic immigrants for gastric cancer in the US [5,6].

The main strength of our study is the use of a recent large, population-based survey in the US and the ability to control for potential confounders including age, sex, race, education and smoking status using multivariate regression analysis. Our study has several notable limitations, including censoring due to gastric cancer mortality and missing information on other important risk factors in particular current or previous H pylori infection. High risk individuals in particular those with known atrophic gastritis and gastric intestinal metaplasia likely will benefit from regular endoscopic surveillance.

In summary, the risk of gastric cancer was similar between immigrants and those born in the US. Gastroenterologists do not need to recommend gastric cancer screening for asymptomatic immigrants at the time of screening colonoscopy.

References

1. Crew KD, Neugut AI. Epidemiology of gastric cancer. World J Gastroenterol. 2006; 12(3): 354-62.

2. Sung H, Ferlay J, Siegel RL, Laversanne M, Soerjomataram I, Jemal A, et al. Global cancer statistics 2020: GLOBOCAN estimates of incidence and mortality worldwide for 36 cancers in 185 countries. CA Cancer J Clin. 2021; 71: 209-49.

3. Plummer M, Franceschi S, Vignat J, Forman D, de Martel C. Global burden of gastric cancer attributable to Helicobacter pylori, Int J Cancer. 2015; 136: 487-90.

4. Yan L, Chen Y, Chen F, Tao T, Hu Z, Wang J, et al. Effect of Helicobacter pylori eradication on gastric cancer prevention: updated report from a randomized controlled trial with 26.5 years of follow-up. Gastroenterology. 2022; 163: 154-62.

5. Evans JA, Chandrasekhara V, Chathadi KV, Decker GA, Early DS, Fisher DA, et al. The role of endoscopy in the management of premalignant and malignant conditions of the stomach. Gastrointest Endosc. 2015; 82(1): 1-8.

6. Gupta S, Li D, El Serag HB, Davitkov P, Altayar O, Sultan S, et al. AGA Clinical Practice Guidelines on Management of Gastric Intestinal Metaplasia. Gastroenterology. 2020; 158(3): 693-702.