

INPLASY PROTOCOL

To cite: Li et al. Temporal trend of prevalence of gastric preneoplastic lesions in Asia: A Systematic review with meta-analysis. Inplasy protocol 2022120028. doi: 10.37766/inplasy2022.12.0028

Received: 07 December 2022

Published: 07 December 2022

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Support: No.

Review Stage at time of this submission: Completed but not published.

Conflicts of interest:
None declared.

Temporal trend of prevalence of gastric preneoplastic lesions in Asia: A Systematic review with meta-analysis

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Review question / Objective: Gastric cancer is the fifth most common cancer in the world, with about 70% of new cases occurring in Asian countries. While chronic atrophic gastritis (CAG) and intestinal metaplasia (IM) are preneoplastic gastric lesions, this study determined the temporal trend for CAG and IM in Asia over the past 50 years.

Condition being studied: Chronic atrophic gastritis (CAG) and intestinal metaplasia (IM) are deemed preneoplastic lesions for gastric cancer. The typical structure converted to cancer experiences the loss of glandular structure, atrophy, and wrong location (metaplasia). Subjects with a lesion of gastric atrophy, intestinal metaplasia, or coexistence suffer from a higher risk for gastric dysplasia and cancer.

INPLASY registration number: This protocol was registered with the International Platform of Registered Systematic Review and Meta-Analysis Protocols (INPLASY) on 07 December 2022 and was last updated on 07 December 2022 (registration number INPLASY2022120028).

INTRODUCTION

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trend for CAG and IM in Asia over the past 50 years.

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lesion of gastric atrophy, intestinal metaplasia, or coexistence suffer from a higher risk for gastric dysplasia and cancer.

METHODS

Search strategy: We utilized primary medical databases, including PubMed, Embase, and MEDLINE, to retrieve related studies published between Jan 1st, 1970, to August 1st 2022. Of the studies we searched, the ones from the Asian region were selected. The primary search terms included the following related to preneoplastic gastric lesions (i.e. Atrophic Gastritides, Atrophic Gastritis, Gastritides, Atrophic, gastric preneoplastic lesion, "Gastritis, Atrophic", intestinal metaplasia, gastric intestinal metaplasia) and epidemiology ((i.e., "prevalence", "seroprevalence", "survey", and "incidence").

Participant or population: Patients who underwent serology or endoscopic based test on CAG or IM.

Intervention: Not available.(Report with prevalence).

Comparator: Not available.(Report with prevalence).

Study designs to be included: Retrospective study, population-based study, territory study.

Eligibility criteria: Detection of CAG by serum and endoscopic methods were both accepted. Other methods, like radiology, were excluded. To discuss the odds of CAG and IM brought by H.pylori, the studies we retrieved were carefully read and documented with relevant data. Any of the following methods could accomplish diagnosis of H. pylori infection: urea breath test (UBT), serology (anti-IgG antibody), histological methods, rapid urease test (RUT), and stool antigen test. . Specific subject group (ie. Diabetes patients or pregnant) were excluded.

Information sources: Mainly derived from online resource. If the full-text cannot be

acquired, then we would ask the author for the full text.

Main outcome(s): Related data include authors' names, publishing years, year of sample collection, lesion types, detection methods, serology or endoscopic-based (for CAG only), gender proportions, age scale, population size, and prevalence rate. The study period of an individual study was determined by the midpoint of sample collection time. Studies periods were separated into four different periods (1970-1990, 1991-2000, 2001-2010, 2011-2021). Studies that reported the odds ratio of H. pylori infection for CAG or IM were documented specifically for information including H. pylori detection methods, infection rate, and odds ratio (with 95%CI).

Quality assessment / Risk of bias analysis: Quality assessment of this study was done based on Critical Appraisal Instrument for Studies Reporting Prevalence Data by Munn Z et al. This prevalence critical appraisal tool comprises nine questions with answers of Yes(Low-risk bias), No(High-risk bias), and Not clear.

Strategy of data synthesis: Heterogeneity was assessed by use of the I² index and Cochran Q test. The random-effects model according to the method of DerSimonian and Laird¹ carried out the pooled prevalence and the corresponding 95% CI and presented as forest plots. A P-value of less than 0.05 was deemed statistically significant in all analyses.

Subgroup analysis: The countries of each study were designated into six continental sub-regions. Study periods were separated into four periods (1960-1990, 1991-2000, 2001-2010, and 2011-2021). Each age group's CAG or IM prevalence data was separated into age groups: <20, 21-30, 31-40, 41-50, 51-60, and 60+. We supposed that the purpose for the subjects to have endoscopic or serology tests might affect the result. Therefore, we conducted a subgroup analysis based on three originations (Screening, Symptomatic subjects, and asymptomatic subjects). No

95% CI coverage was deemed a significant difference between the two subgroups.

Sensitivity analysis: Due to the characteristic of the prevalence study, sensitivity analysis is not performed.

Country(ies) involved: University of Hong Kong (Hong Kong, China).

Keywords: Prevalence, Epidemiology, gastric preneoplastic lesion, Systematic review.

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