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None declared.

Prevalence of lymph node metastases in early gastric cancer: a systematic review and meta-analysis

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Review question / Objective: Early gastric cancer (EGC) involves the mucosa and submucosa, irrespective of the lymph node status (T1Nx), with 5-year survival rates greater than 90%. Endoscopic resection (ER) is a minimally invasive treatment for early gastric cancer (EGC) with a low risk of lymph node metastasis. EGC can be surgically cured, but for EGC without lymph node metastasis, surgical surgery also increases the incidence of surgical trauma and complications in patients. Lymph node dissection cannot be performed by endoscopic resection, so it is also very important to judge whether the EGC early gastric cancer is accompanied by lymph node metastasis for the choice of the treatment mode of the patients. Nevertheless, to the best of our knowledge, there are no prior systematic reviews and meta-analytic studies that determined the prevalence of Prevalence of lymph node metastases in EGC.

INPLASY registration number: This protocol was registered with the International Platform of Registered Systematic Review and Meta-Analysis Protocols (INPLASY) on 17 October 2022 and was last updated on 17 October 2022 (registration number INPLASY2022100064).

INTRODUCTION

Review question / Objective: Early gastric cancer (EGC) involves the mucosa and submucosa, irrespective of the lymph node status (T1Nx), with 5-year survival rates greater than 90%. Endoscopic resection (ER) is a minimally invasive treatment for early gastric cancer (EGC) with a low risk

of lymph node metastasis. EGC can be surgically cured, but for EGC without lymph node metastasis, surgical surgery also increases the incidence of surgical trauma and complications in patients. Lymph node dissection cannot be performed by endoscopic resection, so it is also very important to judge whether the EGC early gastric cancer is accompanied by lymph

node metastasis for the choice of the treatment mode of the patients. Nevertheless, to the best of our knowledge, there are no prior systematic reviews and meta-analytic studies that determined the prevalence of Prevalence of lymph node metastases in EGC.

Condition being studied: Patients with early gastric cancer can be radical cured by gastrectomy, but the lymph node metastasis rate is reported as 9.6-21.6%, indicating that most patients with early gastric cancer can avoid surgical overtreatment, and then undergo endoscopic resection. Overall, the prevalence of early gastric cancer lymph nodes was inconsistent across all studies. Several factors have contributed to the significant differences in the incidence of lymph nodes in early gastric cancer, including: (i) the pathological methods of immunohistochemistry may vary in different institutions and countries. Some countries differ in Germany, Korea and Japan.(ii) In addition, the handling of resected specimen, especially serial sectioning of endoscopic resection material, in Western countries may not be the same as in Japan. (iii) Moreover, the treatment of the resected specimens, especially in the endoscopic resection material, in Western countries may be different from that in Japan.

METHODS

Participant or population: Patients with lymph node metastasis of early gastric cancer.

Intervention: Prevalence of lymph node metastasis.

Comparator: Patients with early gastric cancer without lymph node metastasis.

Study designs to be included: Case-control study or cohort study.

Eligibility criteria: Inclusion criteria :(1) The study design was a case-control study or cohort study on the prevalence of lymph

node metastasis in early gastric cancer; (2) The original data, OR value, 95%CI OR convertible OR value, 95%CI are provided; (3) The papers published from January 1, 2010 to October 1, 2022 are SCI (impact factor > 1.8) and Chinese core journal series. Exclusion criteria :(1) Review literature, abstract only, no control group, original studies with sample size < 100; (2) only specific types of gastric cancer were studied; (3) The definition of risk factors is not accurate, and the full text of the literature cannot be obtained. (4) The main research objects were people before 2010.

Information sources: Web Of Science database, Pubmed database, Embase database, Cochrane Library, Chinese database (CNKI Database (CNKI), Wanfang Database, Chinese Biomedical Literature Database (CBM), VIP database).

Main outcome(s): Prevalence.

Additional outcome(s): None.

Data management: Review Manager5.3.

Quality assessment / Risk of bias analysis: This systematic review and meta-analysis was designed, conducted and reported in accordance with the preferred reporting items for systematic reviews and meta-analyses (PRISMA)guidelines.The quality of each study that met the inclusion criteria was assessed using the the Newcastle Ottawa scale (NOS), with a score ranging from 0 to 9, and a total score of 6 suggesting a high-quality study.

Strategy of data synthesis: The extracted data were merged using two software, RevMan 5.3 and Stata14. The combined results are represented as odds ratios (ORs) and 95% confidence intervals (95%CI). Q test and I² analysis were used to evaluate the heterogeneity between the included studies. When $p > 0.1$ and I^2 were $< 50\%$, there was no statistical heterogeneity among all studies and the data were analyzed by fixed effects model; Besides, we used sensitivity analysis to test the heterogeneity and excluded relevant articles leading to the

heterogeneity. If heterogeneity could not be excluded, a random effects model was used. A test of bias is also required. A $P < 0.05$ was considered as a statistically significant difference.

Subgroup analysis: Subgroup studies were conducted according to age, gender, economic environment and other factors.

Sensitivity analysis: After deleting any one of the papers, the combined results of the remaining papers are not different from those without deletion, which means that sensitivity analysis has been passed.

Country(ies) involved: China.

Keywords: Early gastric cancer·Lymph node metastasis·Meta-analysis.

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