INPLASY

MicroRNA Dysregulation Associated with The Progression of Helicobacter Pylori Infection into Gastric Cancer: A Systematic Review

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ADMINISTRATIVE INFORMATION

Support - Dr Nazri Mustaffa sources for the funding of the manuscript.

Review Stage at time of this submission - Piloting of the study selection process.

Conflicts of interest - None declared.

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Amendments - This protocol was registered with the International Platform of Registered Systematic Review and Meta-Analysis Protocols (INPLASY) on 24 March 2024 and was last updated on 24 March 2024.

INTRODUCTION

Review question / Objective Main question: What is the significance of miRNAs related to the progression of helicobacter pylori infection into gastric cancer.
1. What are the differentially expressed miRNAs between HP positive GC and HP negative GC.
2. what are the components that can influence the levels of miRNAs in HP.
3. What are the target genes of miRNAs.
4. What are the functions of miRNAs in HP positive GC.

Rationale Helicobacter pylori (Hp) infection has become a global health problem, infecting about 50% of the worldwide population and is a major cause of chronic gastritis, peptic ulcers and gastric cancer. All patients with gastric cancer virtually have Helicobacter pylori infection, and 85% of gastric cancer is attributed to Helicobacter pylori infection. Additionally, miRNAs are significant regulators of gene expression in diverse cancers. The roles of microRNAs in the progression of helicobacter pylori infection into gastric cancer are not fully understood. Our systematic review can provide guidance for future research.

Condition being studied One reason of Gastric cancer is helicobacter pylori (Hp) infection. The mechanisms of HP-GC is largely unknown. Furthermore, HP-GC is difficult to be detected in early stage and treated in advanced stage.

METHODS

Search strategy PubMed ((("MicroRNAs"[Mesh]) OR ((MicroRNA[Title/Abstract]) OR (miRNA[Title/Abstract]))) AND (("Helicobacter pylori"[Mesh]) OR (((Helicobacter pylori[Title/Abstract]) OR

(Helicobacter nemestrinae[Title/Abstract])) OR (Campylobacter pylori[Title/Abstract]))))) AND ((("Stomach Neoplasms"[Mesh]) OR (((((Stomach Neoplasm[Title/Abstract]) OR (Gastric Neoplasm[Title/Abstract])) OR (Gastric Cancer[Title/Abstract])) OR (Stomach Cancer[Title/Abstract])) OR (gastric adenocarcinoma[Title/Abstract])))
Embase ('microrna'/exp OR 'microrna':ab,ti OR 'mirna':ab,ti) AND ('helicobacter pylori'/exp OR 'helicobacter pylori':ab,ti OR 'helicobacter nemestrinae':ab,ti OR 'campylobacter pylori':ab,ti) AND ('stomach tumor'/exp OR 'stomach neoplasm':ab,ti OR 'gastric neoplasm':ab,ti OR 'gastric cancer':ab,ti OR 'stomach cancer':ab,ti OR 'gastric adenocarcinoma':ab,ti)
Google scholar allintitle:(microRNA OR miRNA) ("Helicobacter pylori" OR "Helicobacter nemestrinae" OR "Campylobacter pylori") ("Stomach Neoplasm" OR "Gastric Neoplasm" OR "Gastric Cancer" OR "Stomach Cancer" OR "gastric adenocarcinoma")
Web of science ((TS=(MicroRNA)) OR TS=(miRNA)) AND (((TS=(Helicobacter pylori)) OR TS=(Helicobacter nemestrinae)) OR TS=(Campylobacter pylori)) AND (((((TS=(Stomach Neoplasm)) OR TS=(Gastric Neoplasm)) OR TS=(Gastric Cancer)) OR TS=(Stomach Cancer)) OR TS=(gastric adenocarcinoma)).

Participant or population HP-positive GC patients, HP-negative GC patients, HP-positive non-GC patients.

Intervention Differentially expressed miRNAs.

Comparator Comparing HP positive GC tissues with HP negative GC tissues or HP positive non-GC tissues.

Study designs to be included Randomized and non-randomized trials were included in this review.

Eligibility criteria Inclusion criteria: a) Differentially expressed miRNAs are identify by comparing with the miRNA levels of HP positive GC tissues with the miRNA levels of HP negative GC tissues or HP positive non-GC tissues. (Only human tissues) b)The research aim is to explore the miRNAs related to the progression of Helicobacter pylori infection into GC. c) MiRNAs are verified by cell and animal assays. d) Only full-text publications in English were included. Exclusion criteria: a) Review articles, meeting abstracts, and conferences were excluded. b) Studies that only use cell or animal samples. c) The languages of articles were not English.

Information sources PubMed, EMBASE, Google Scholar, Web of Science.

Main outcome(s) microRNAs are crucial paticipants in the the progression of Helicobacter pylori infection into GC.

Additional outcome(s) The secondary outcomes are characteristics of participants, microRNAs involved target genes, functions, changes, detection of microRNA, and technique and results of cell study. Furthermore, miRNA therapy may be applied in the treatment of HP-GC.

Data management Endnote 20, microsoft excel, microsoft word.

Quality assessment / Risk of bias analysis Not applied.

Strategy of data synthesis The data analysis of these articles will be descriptive and the results will presented in tabular form, allowing the reader to systematically review and assess each article, such as: characteristics of participants, microRNAs involved target genes, functions, changes, detection of microRNAs and technique and results of cell study. Meta-analysis will not be conducted. To interpret the outcomes, we will conduct a discussion and conlusion of the findings from these experiments in the context of the literature and explore potential clinical applications of miRNAs in HP positive GC.

Subgroup analysis None.

Sensitivity analysis None.

Language restriction English.

Country(ies) involved Malaysia, China.

Keywords Malaysia, China.

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