

Supplementary material

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Supplementary Table S1 Search Strategies

1.1 PubMed (via Medline) Search Strategy

Search Date: 9 Jun 2022

Final Search: #3

Search	Query
#1	"Gastroesophageal Reflux"[MeSH] OR "Gastroesophageal Reflux"[Title/Abstract] OR "Gastroesophageal Regurgitation"[Title/Abstract] OR "Gastro Esophageal Reflux"[Title/Abstract] OR "Gastroesophageal Reflux"[Title/Abstract] OR "Gastroesophageal Regurgitation"[Title/Abstract] OR "Gastro Oesophageal Reflux"[Title/Abstract] OR "Gastric Acid Reflux"[Title/Abstract] OR "Gastric Regurgitation"[Title/Abstract] OR "Esophagus Reflux"[Title/Abstract] OR "Esophageal Reflux"[Title/Abstract] OR "Esophageal Regurgitation"[Title/Abstract] OR "Oesophageal Reflux"[Title/Abstract] OR "Oesophageal Regurgitation"[Title/Abstract] OR "Esophagogastric Reflux"[Title/Abstract] OR "Oesophagogastric Reflux"[Title/Abstract] OR "Cardioesophageal Reflux"[Title/Abstract] OR GERD[Title/Abstract] OR GORD[Title/Abstract]
#2	Guideline[Publication Type] OR "Guidelines as Topic"[MeSH] OR "Practice Guideline" [Publication Type] OR Consensus[MeSH] OR Guideline*[Title] OR Guidance*[Title] OR Consensus*[Title] OR Recommendation*[Title]
#3	#1 AND #2

1.2 Embase Search Strategy

Search Date: 9 Jun 2022

Final Search: #3

Search	Query
#1	'gastroesophageal reflux'/exp OR "gastroesophageal reflux":ab,ti,kw OR 'gastroesophageal regurgitation':ab,ti,kw OR 'gastro esophageal reflux':ab,ti,kw OR 'gastroesophageal reflux':ab,ti,kw OR 'gastroesophageal regurgitation':ab,ti,kw OR 'gastro oesophageal reflux':ab,ti,kw OR 'gastric acid reflux':ab,ti,kw OR 'gastric regurgitation':ab,ti,kw OR 'esophagus reflux':ab,ti,kw OR 'esophageal reflux':ab,ti,kw OR 'esophageal

	regurgitation':ab,ti,kw OR 'oesophageal reflux':ab,ti,kw OR 'oesophageal regurgitation':ab,ti,kw OR 'esophagogastric reflux':ab,ti,kw OR 'oesophagogastric reflux':ab,ti,kw OR 'cardioesophageal reflux':ab,ti,kw OR GERD:ab,ti,kw OR GORD:ab,ti,kw
#2	'guideline'/exp OR 'practice guideline'/exp OR 'consensus'/exp OR guideline*:ti OR guidance*:ti OR consensus*:ti OR recommendation*:ti
#3	#1 AND #2

1.3 Cochrane Library Search Strategy

Search Date: 9 Jun 2022

Final Search: #8

Search	Query
#1	MeSH descriptor: [Gastroesophageal Reflux] explode all trees
#2	(Gastroesophageal Reflux):ti,ab,kw OR (Gastroesophageal Regurgitation):ti,ab,kw OR (Gastro Esophageal Reflux):ti,ab,kw OR (Gastro-Esophageal Reflux):ti,ab,kw OR (Gastrooesophageal Reflux):ti,ab,kw OR (Gastrooesophageal Regurgitation):ti,ab,kw OR (Gastro Oesophageal Reflux):ti,ab,kw OR (Gastro-Oesophageal Reflux):ti,ab,kw OR (Gastric Acid Reflux):ti,ab,kw OR (Gastric Regurgitation):ti,ab,kw OR (Esophagus Reflux):ti,ab,kw OR (Esophageal Reflux):ti,ab,kw OR (Esophageal Regurgitation):ti,ab,kw OR (Oesophageal Reflux):ti,ab,kw OR (Oesophageal Regurgitation):ti,ab,kw OR (Esophagogastric Reflux):ti,ab,kw OR (Oesophagogastric Reflux):ti,ab,kw OR (Cardioesophageal Reflux):ti,ab,kw OR (GERD):ti,ab,kw OR (GORD):ti,ab,kw
#3	#1 OR #2
#4	MeSH descriptor: [Guidelines as Topic] explode all trees
#5	MeSH descriptor: [Consensus] explode all trees
#6	(Guideline):ti OR (Guidance*):ti OR (Consensus*):ti OR (Recommendation*):ti
#7	#4 OR #5 OR #6
#8	#3 AND #7

1.4 CNKI Search Strategy

Search Date: 9 Jun 2022

Final Search: #3

Search	Query
#1	SU='胃食管反流' OR KY='胃内容物反流' OR KY='食管反流' OR KY='食管返流' OR KY='反流性食管炎'
#2	SU='指南' OR SU='专家共识' OR SU='共识意见'
#3	#1 AND #2

1.5 CBM Search Strategy

Search Date: 9 Jun 2022

Final Search: #3

Search	Query
#1	"胃食管反流"[加权:扩展] OR "胃内容物反流"[关键词:智能] OR "食管反流"[关键词:智能] OR "食管返流"[关键词:智能] OR "反流性食管炎"[关键词:智能]
#2	"指南"[加权:扩展] OR "专家共识"[中文标题:智能] OR "共识意见"[中文标题:智能]
#3	#1 AND #2

1.6 WanFang Search Strategy

Search Date: 9 Jun 2022

Final Search: #3

Search	Query
#1	(((((主题="胃食管反流") OR 关键词="胃内容物反流") OR 关键词="食管反流") OR 关键词="食管返流") OR 关键词="反流性食管炎"
#2	((主题="指南") OR 题名="专家共识") OR 题名="共识意见"
#3	#1 AND #2

Supplementary Table S2 Recommendations in *Definition* of Gastroesophageal Reflux Disease

No.	Recommendation in Definition	Consistency in Direction	Consistency in Strength
1	GERD is a condition characterized by regurgitation of gastric contents into the esophagus or the mouth, resulting in troublesome symptoms or complications. It is classified into RE with esophageal mucosal injuries and NERD with symptoms alone.	+	+
2	The typical symptoms are heartburn or retrosternal burning and regurgitation.	+	+
3	The atypical symptoms are chest pain, burning sensation in the upper abdomen, epigastric pain, bloating, eructation, nausea, vomiting, respiratory symptoms (cough, wheeze, chronic rhinosinusitis).	+	+
4	Alarm symptoms are dysphagia, gastrointestinal bleeding, persistent cough, anemia, involuntary weight loss, recurrent vomiting, and odynophagia.	+	+
5	GERD can cause various extra-esophageal symptoms such as cough, asthma, hoarseness, or non-cardiac chest pain. Extra-esophageal GERD symptoms may or may not be accompanied by typical GERD symptoms.	+	-
6	NERD is a subcategory of GERD. It is characterized by troublesome reflux symptoms with abnormally increased gastroesophageal reflux observed on 24-hour ambulatory pH-impedance monitoring in the absence of esophageal mucosal injury confirmed on endoscopy.	+	+

7	Refractory GERD is defined as GERD symptoms unresponsive to the administration of ≥ 8 weeks of a standard dose of an acid-suppressive agent.	+	-
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+, consistent; -, inconsistent; /, not applicable.

CPGs, clinical practice guidelines; GERD, gastroesophageal reflux disease; NERD, non-erosive reflux disease; RE, reflux esophagitis.

Supplementary Table S3 Recommendations in *Epidemiology of Gastroesophageal Reflux Disease*

Categories	No.	Recommendations in Epidemiology	Consistency in Direction	Consistency in Strength
Morbidity	1	The prevalence of GERD is increasing in Asian countries .	+	-
	2	Refractory reflux-like symptoms affects all ethnicities with some predilection for Latino patients.	/	/
	3	The prevalence ranges between 0.1 and 20 % in industrial countries .	/	/
Prevalence	4	Most cases of GERD are mild and NERD remains the commonest manifestation of GERD.	+	+
	5	The severity of erosive reflux disease remains mild.	/	/
	6	Extra-esophageal manifestations of GERD is likely to be uncommon in Asia.	/	/
Factors	7	Obesity is a risk factor for GERD.	+	+
	8	Dietary factor is a risk factor for GERD.	+	+
	9	Consumption of tobacco is a risk factor for GERD.	-	/
	10	Evidence for alcohol consumption as a risk factor for GERD is lacking.	+	+
	11	The symptoms of GERD are exacerbated with increase in intra-abdominal pressure .	/	/
	12	The symptoms of GERD are related to posture .	/	/
	13	The decline in <i>H. pylori</i> infection is unlikely to have a major role in the increasing prevalence of GERD.	-	/

+, consistent; -, inconsistent; /, not applicable.

CPGs, clinical practice guidelines; GERD, gastroesophageal reflux disease; *H. pylori*, *Helicobacter pylori*; NERD, non-erosive reflux disease.

Supplementary Table S4 Recommendations in *Diagnosis* of Gastroesophageal Reflux Disease

Categories	No.	Recommendations in Diagnosis	Consistency in Direction	Consistency in Strength
Symptom-based diagnosis	1	For GERD diagnosis, typical symptoms (heartburn and acid regurgitation) or symptom-based diagnostic questionnaires are recommended.	+	-
	2	For GERD diagnosis, the signs and symptoms are insufficient to establish a conclusive diagnosis of GERD, resulting in a diagnostic certainty of around 40%.	+	+
PPI test	3	For GERD diagnosis, a 2-week trial of a standard dose of PPI is a sensitive and practical test.	-	/
Endoscopy	4	For GERD diagnosis, endoscopy is recommended.	+	-
	5	For GERD with only typical symptoms , endoscopy is not recommended.	/	/
	6	For refractory GERD , endoscopy is recommended.	+	-
Reflux monitoring	7	For GERD diagnosis, 24-h impedance pH monitoring is the gold standard diagnosis.	+	-
	8	For mild-to-moderate GERD , pH monitoring and impedance testing are not necessary in the routine management.	+	+
	9	During ambulatory reflux monitoring, PPI should be without for at least 7 days.	+	+
Esophageal manometry	10	For refractory GERD with normal endoscopy, esophageal manometry and/or esophageal pH monitoring should be considered.	+	-
Barium esophagogram	11	For GERD diagnosis, barium esophagogram is not recommended.	+	-
Esophageal biopsy	12	For GERD without esophageal injury, esophageal biopsy is not routinely recommended.	+	+
	13	For GERD with eosinophilic esophagitis, esophageal biopsy is recommended.	+	+
Others	14	Before diagnosing non-cardiac chest pain from GERD, careful cardiac evaluation is needed.	+	-

+, consistent; -, inconsistent; /, not applicable.

CPGs, clinical practice guidelines; GERD, gastroesophageal reflux disease; PPI, proton pump inhibitor.

Supplementary Table S5 Recommendations in *Treatment of Gastroesophageal Reflux Disease*

Categories	No.	Recommendations in Treatment	Consistency in Direction	Consistency in Strength
Lifestyle Modifications	1	For GERD with overweight, weight reduction is recommended.	+	-
	2	For GERD, tobacco cessation and alcohol cessation/reduction are recommended.	+	-
	3	For GERD, triggers for reflux symptoms (caffeine, tobacco, alcohol, chocolates, spicy food) if identified should be avoided.	-	/
	4	For GERD with nocturnal symptoms, meals within 2–3 h of bedtime should be avoided.	+	-
	5	For GERD with nocturnal symptoms, head-of-bed elevation is recommended.	+	-
	6	For GERD while sleeping, sleeping in the left lateral position is recommended.	/	/
Medical Treatment	7	For GERD, PPIs are the mainstay of treatment.	+	-
	8	For GERD, a standard dose of PPI once a day for 4 to 8 weeks is recommended as the initial treatment.	+	-
	9	For GERD, the PPIs should be administered in the lowest effective dose, daily, on-demand, or intermittently as long-term maintenance.	+	+
	10	For PPI-resistant GERD, it is recommended to change to the double-dose PPI therapy .	+	-
	11	For PPI-resistant GERD, it is recommended to change to P-CAB .	+	-
	12	For PPI-resistant GERD, it is recommended to switch to another PPI .	+	-
	13	For PPI-resistant GERD, it is recommended to add the prokinetic drug, mosapride, alginates, H ₂ RA or the traditional herbal medicine, rikkunshito.	+	-
	14	For RE, PPI is recommended as first-line initial treatment and long-term maintenance.	+	-
	15	For RE, P-CAB is recommended as first-line initial treatment and long-term maintenance.	/	/
	16	For extra-esophageal GERD , standard-dose PPI treatment, given twice daily for at least 12 weeks is recommended.	+	-

	17	For refractory GERD , the first step is to reassess the symptoms and ensure that the patient is taking the medication correctly.	+	-
	18	For GERD with nocturnal reflux symptoms, optimizing PPI therapy or adding an H ₂ RA at night should be considered.	+	-
	19	For NERD relapse , on demand or intermittent PPI therapy is suggested.	+	-
	20	For RE relapse , continuous PPI treatment is recommended.	+	+
	21	For GERD with PPI, classic PPIs are administered 30-60 minutes before meals .	+	+
	22	For GERD with long-term PPI, it is generally safe, but need careful caution.	+	-
	23	For pregnant GERD , sucralfate, antacids or alginate-antacid combination, or PPIs can be used.	+	-
	24	For occasional GERD symptoms, antacids and H₂RA can be used.	/	/
	25	For GERD with esophagitis, sucralfate can improve GERD symptoms, and promote mucosal healing.	/	/
	26	For mild NRED, antacids may be used to rapidly relief uncontrolled GERD symptoms.	+	+
	27	For GERD, alginates can improve the symptoms.	+	-
	28	For mild NERD, alginate-antacid combination can improve reflux symptoms, and is more effective than antacid.	+	-
	29	For GERD, prokinetic drugs are not routinely recommended.	+	-
	30	For GERD, <i>H. pylori</i> screening and treatment are not generally recommended.	+	-
Surgical Treatment	31	For GERD with long-term PPI, <i>H. pylori</i> screening and treatment should be considered.	+	-
	32	For GERD, anti-reflux surgery is recommended.	+	-
	33	For GERD, laparoscopic partial and total funduplications are currently the best available surgical techniques to treat severe GERD.	+	+
	34	For GERD, radiofrequency ablation is recommended for improving the symptoms.	+	+
	35	For extra-esophageal GERD, anti-reflux surgery is recommended.	-	/
	36	For GERD with gastroparesis , anti-reflux surgery should be avoided.	/	/
	37	Before anti-reflux surgery, endoscopy is mandatory.	+	-
	38	Before anti-reflux surgery, ambulatory pH-impedance monitoring and esophageal manometry are recommended.	+	-
	39	Before anti-reflux surgery, esophageal biopsy is not routinely recommended.	/	/
	40	Before anti-reflux surgery with suspicion of HH or short oesophagus, barium esophagogram is mandatory.	+	-
	41	After endoscopic treatment, short-term use of acid suppressors is still necessary.	/	/

	42	For patients who value improvement in reflux symptoms over the risk of dysphagia, total fundoplication may be the preferred option.	/	/
	43	For patients who value the minimization of dysphagia highly, partial fundoplication may be offered preferentially.	/	/

+, consistent; -, inconsistent; /, not applicable.

CPGs, clinical practice guidelines; GERD, gastroesophageal reflux disease; H₂RA, histamine-2 receptor antagonists; *H. pylori*, *Helicobacter pylori*; P-CAB, potassium competitive acid blocker; PPI, proton pump inhibitor; RE, reflux esophagitis.

Supplementary Table S6 Recommendations in *Complications* of Gastroesophageal Reflux Disease

Categories	No.	Recommendations in Complications	Consistency in Direction	Consistency in Strength
Prevalence	1	The prevalence of BE is low in the region.	+	+
	2	The BE risk factors are older age, male gender, chronic GERD, hiatal hernia, elevated BMI, smoking.	+	-
Surveillance	3	For BE surveillance, it is recommended for patients with multiple risk factors .	+	-
	4	For BE surveillance, it is not recommended for general population .	+	-
	5	For BE diagnosis, it must be confirmed by histopathology which shows columnar metaplasia .	+	-
Treatment	6	For BE, PPI therapy can reduce the risk of dysplasia/esophageal cancer.	+	-
	7	For BE, anti-reflux surgery is recommended.	+	+
	8	For BE with low-grade dysplasia, resecting the lesion, radiofrequency ablation or surveillance (repeat endoscopy in 6 months) are recommended.	/	/
	9	For BE with high-grade dysplasia, resecting the lesion and radiofrequency ablation are recommended.	/	/

+, consistent; -, inconsistent; /, not applicable.

BE, Barrett's esophagus; CPGs, clinical practice guidelines; GERD, gastroesophageal reflux disease; PPI, proton pump inhibitor.