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CADTH RAPID RESPONSE REPORT: REFERENCE LIST

Pre-Procedural Medications for Endoscopic Retrograde Cholangiopancreatography: Clinical Effectiveness and Guidelines

Service Line:	Rapid Response Service
Version:	1.0
Publication Date:	July 8, 2020
Report Length:	8 Pages

CADTH

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Cite As: Pre-procedural medications for endoscopic retrograde cholangiopancreatography: clinical effectiveness and guidelines. Ottawa: CADTH; 2020 Jul. (CADTH rapid response report: reference list).

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Funding: CADTH receives funding from Canada's federal, provincial, and territorial governments, with the exception of Quebec.

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Research Questions

1. What is the clinical effectiveness of pre-procedural medications for endoscopic retrograde cholangiopancreatography?
2. What are the guidelines for pre-procedural medications for endoscopic retrograde cholangiopancreatography?

Key Findings

Two systematic reviews with meta-analyses, four randomized controlled trials, three non-randomized studies, and six evidence-based guidelines were identified regarding the clinical effectiveness or use of pre-procedural medications for endoscopic retrograde cholangiopancreatography.

Methods

A limited literature search was conducted by an information specialist on key resources including MEDLINE All via Ovid, the Cochrane Library, the University of York Centre for Reviews and Dissemination (CRD) databases, the websites of Canadian and major international health technology agencies, as well as a focused Internet search. The search strategy was comprised of both controlled vocabulary, such as the National Library of Medicine's MeSH (Medical Subject Headings), and keywords. The main search concepts were endoscopic retrograde cholangiopancreatography and premedication. No filters were applied to limit the retrieval by study type. Where possible, retrieval was limited to the human population. The search was also limited to English language documents published between January 1, 2010 and July 1, 2020. Internet links were provided, where available.

Selection Criteria

One reviewer screened citations and selected studies based on the inclusion criteria presented in Table 1.

Table 1: Selection Criteria

Population	Adult patients with suspected problems of the biliary or pancreatic ductal systems
Intervention	ERCP with pre-procedural medications, alone or in combination with each other, including: • Analgesics (e.g., meperidine hydrochloride) • Muscarinic antagonists (e.g., glycopyrrolate) • Medication to treat anxiety (e.g., lorazepam) • Prophylactic antibiotics
Comparator	Q1: ERCP with no pre-medications ERCP with one or more placebo pre-medication ERCP with an alternative pre-medication Q2: Not applicable
Outcomes	Q1: Clinical effectiveness (e.g., discomfort, saliva production, anxiety, infection) and safety (e.g., disorientation) Q2: Recommendations regarding the use of pre-medications for ERCP
Study Designs	Health technology assessments, systematic reviews, randomized controlled trials, non-randomized studies, evidence-based guidelines

ERCP = endoscopic retrograde cholangiopancreatography.

Results

Two systematic reviews with meta-analyses,[1,2] four randomized controlled trials,[3-6] and three non-randomized studies[7-9] were identified regarding the clinical effectiveness of pre-procedural medications for endoscopic retrograde cholangiopancreatography. In addition, six evidence-based guidelines[10-15] were identified that included recommendations regarding the use of pre-procedural medications for endoscopic retrograde cholangiopancreatography. No relevant health technology assessments were identified.

Additional references of potential interest that did not meet the inclusion criteria are provided in the appendix.

Health Technology Assessments

No literature identified.

Systematic Reviews and Meta-analyses

1. Garg R, Mohan BP, Krishnamoorthi R, Rustagi T. Pre-endoscopic retrograde cholangiopancreatography (ERCP) administration of rectal indomethacin in unselected patients to reduce post-ERCP pancreatitis: a systematic review and meta-analysis. *Indian J Gastroenterol*. 2018;37(2):120-126.
   PubMed: PM29619673

2. Brand M, Bizos D, O'Farrell P, Jr. Antibiotic prophylaxis for patients undergoing elective endoscopic retrograde cholangiopancreatography. *Cochrane Database Syst Rev*. 2010(10):CD007345.
   PubMed: PM20927758

Randomized Controlled Trials

3. Parekh DV, Rambhia S, Joshi MA, Kumar V, Pawar V, Pohekar MJ, et al. Randomized placebo controlled study of diclofenac as premedication for endoscopic retrograde cholangiopancreatography. Int Surg J 2020;7:730-2.

4. Kim NH, Kim HJ, Bang KB. Prospective comparison of prophylactic antibiotic use between intravenous moxifloxacin and ceftriaxone for high-risk patients with post-ERCP cholangitis. *Hepatobiliary Pancreat Dis Int*. 2017;16(5):512-518.
   PubMed: PM28992884

5. Ulusoy H, Coskun I, Arslan M. Effects of midazolam or tramadol premedication on early cognitive function in endoscopic retrograde cholangiopancreatography (ERCP): a randomized, controlled, double-blind study. *J Int Med Res*. 2016;44(3):542-556.
   PubMed: PM26944385

6. Amornyotin S, Chalayonnawin W, Kongphlay S. A randomized controlled trial of preprocedure administration of parecoxib for therapeutic endoscopic retrograde cholangiopancreatography. *J Pain Res*. 2012;5:251-256.
   PubMed: PM23049274

Non-Randomized Studies

Retrospective Cohort

7. Kohli DR, Shah TU, BouHaidar DS, Vachhani R, Siddiqui MS. Significant infections in liver transplant recipients undergoing endoscopic retrograde cholangiography are few and unaffected by prophylactic antibiotics. *Dig Liver Dis*. 2018 11;50(11):1220-1224.
   PubMed: PM29907534

8. Wang J, Shen Y, Zhong Z, Wu S, Zheng L. Risk factors for post-endoscopic retrograde cholangiopancreatography (ERCP) pancreatitis and the effect of octreotide combined with nonsteroidal anti-inflammatory drugs on preventing its occurrence. *Med Sci Monit*. 2018;24:8964-8969.
   PubMed: PM30531679

Prospective Cohort

9. Voiosu TA, Bengus A, Haidar A, et al. Antibiotic prophylaxis prior to elective ERCP does not alter cholangitis rates or shorten hospital stay: results of an observational prospective study of 138 consecutive ERCPS. *Maedica (Buchar)*. 2014;9(4):328-332.
   PubMed: PM25705300

Guidelines and Recommendations

10. Dumonceau JM, Kapral C, Aabakken L, et al. ERCP-related adverse events: European Society of Gastrointestinal Endoscopy (ESGE) guideline. *Endoscopy*. 2020;52(2):127-149.
    PubMed: PM31863440
    See: Recommendation 5.1 (p.133)

11. Domagk D, Oppong KW, Aabakken L, et al. Performance measures for ERCP and endoscopic ultrasound: a European Society of Gastrointestinal Endoscopy (ESGE) quality improvement initiative. *Endoscopy*. 2018;50.
    https://www.esge.com/assets/downloads/pdfs/guidelines/2018_a_0749_8767.pdf. Accessed 2020 Jul 8.
    See: Recommendation 1 (p.4)

12. Aabakken L, Karlsen TH, Albert J, et al. Role of endoscopy in primary sclerosing cholangitis: European Society of Gastrointestinal Endoscopy (ESGE) and European Association for the Study of the Liver (EASL) clinical guideline. *Endoscopy*. 2017;49(6):588-608.
    PubMed: PM28420030
    See: Recommendation 1 (p.590)

13. Chandrasekhara V, Khashab MA, Muthusamy R, et al. Adverse events associated with ERCP. *Gastrointest Endosc.* 2017;85(1):32-47.
    PubMed: PM27546389
    See: Recommendation 11 (p.43)

14. ASGE Standards of Practice Committee, Khashab MA, Chithadi KV, et al. Antibiotic prophylaxis for GI endoscopy. *Gastrointest Endosc.* 2015: 81(1):81-9.
    PubMed: PM25442089
    See: Recommendation 4 (p.86-87)

15. Dumonceau J-M, Andriulli A, Elmunzer BJ, et al. Prophylaxis of post-ERCP pancreatitis: European Society of Gastrointestinal Endoscopy (ESGE) guideline–updated June 2014. *Endoscopy*. 2014;46:799–815.
PubMed: PM25148137
See: Section 5.2.1. Nonsteroidal anti-inflammatory drugs (NSAIDs) (p.802-804)

Appendix — Further Information

Systematic Reviews and Meta-analyses

Alternative Comparator

16. Hou YC, Hu Q, Huang J, Fang JY, Xiong H. Efficacy and safety of rectal nonsteroidal anti-inflammatory drugs for prophylaxis against post-ERCP pancreatitis: a systematic review and meta-analysis. *Sci Rep*. 2017;7:46650.
PubMed: PM28440297

Unclear Comparator

17. Liu L, Li C, Huang Y, Jin H. nonsteroidal anti-inflammatory drugs for endoscopic retrograde cholangiopancreatography postoperative pancreatitis prevention: a systematic review and meta-analysis. *J Gastrointest Surg*. 2019;23(10):1991-2001.
PubMed: PM30251071

18. Pekgoz M. Post-endoscopic retrograde cholangiopancreatography pancreatitis: a systematic review for prevention and treatment. *World J Gastroenterol*. 2019;25(29):4019-4042.
PubMed: PM31413535

19. Wan J, Ren Y, Zhu Z, Xia L, Lu N. How to select patients and timing for rectal indomethacin to prevent post-ERCP pancreatitis: a systematic review and meta-analysis. *BMC Gastroenterol*. 2017;17(1):43.
PubMed: PM28298192

Timing of Antibiotic Administration is Unclear

20. Yang C, Zhao Y, Li W, et al. Rectal nonsteroidal anti-inflammatory drugs administration is effective for the prevention of post-ERCP pancreatitis: An updated meta-analysis of randomized controlled trials. *Pancreatology*. 20217;17: 681-688.
PubMed: PM28734720

21. Cao WL, Yan WS, Xiang XH, Chen K, Xia SH. Prevention effect of allopurinol on post-endoscopic retrograde cholangiopancreatography pancreatitis: a meta-analysis of prospective randomized controlled trials. *PLoS ONE.* 2014;9: e107350.
PubMed: PM41759328

22. Zhang ZF, Yang N, Zhao G, Zhu L, Zhu Y, Wang LX. Preventive effect of ulinastatin and gabexate mesylate on post-endoscopic retrograde cholangiopancreatography pancreatitis. *Chin Med J*. 2010;123(18):2600-2606.
PubMed: PM21034635

Randomized Controlled Trials

Alternative Comparator

23. Luo H, Zhao L, Leung J, et al. Routine pre-procedural rectal indometacin versus selective post-procedural rectal indometacin to prevent pancreatitis in patients undergoing endoscopic retrograde cholangiopancreatography: a multicentre, single-blinded, randomised controlled trial. *Lancet*. 2016;387(10035):2293-2301.
PubMed: PM27133971

Timing of Antibiotic Administration is Unclear

24. Patai A, Solymosi N, Patai AV. Effect of rectal indomethacin for preventing post-ERCP pancreatitis depends on difficulties of cannulation: results from a randomized study with sequential biliary intubation. *J Clin Gastroenterol*. 2015;49(5):429-437.
PubMed: PM25790233

Non-Randomized Studies

Timing of Antibiotic Administration is Unclear

25. Ishigaki T, Sasaki T, Serikawa M, et al. Evaluation of antibiotic use to prevent post-endoscopic retrograde cholangiopancreatography pancreatitis and cholangitis. *Hepatogastroenterology*. 2015;62(138):417-424.
PubMed: PM25916074

26. Olsson G, Arnelo U, Lundell L, Persson G, Tornqvist B, Enochsson L. The role of antibiotic prophylaxis in routine endoscopic retrograde cholangiopancreatography investigations as assessed prospectively in a nationwide study cohort. *Scand J Gastroenterol*. 2015;50(7):924-931.
PubMed: PM25769041

Alternative Outcomes

27. Minami T, Sasaki T, Serikawa M, Ishigaki T, Murakami Y, Chayama K. Antibiotic prophylaxis for endoscopic retrograde chlangiopancreatography increases the detection rate of drug-resistant bacteria in bile. *J Hepatobiliary Pancreat Sci*. 2014;21(9):712-718.
PubMed: PM24925282

Unclear Comparator

28. Wobser H, Gunesch A, Klebl F. Prophylaxis of post-ERC infectious complications in patients with biliary obstruction by adding antimicrobial agents into ERC contrast media-a single center retrospective study. *BMC Gastroenterol*. 2017;17(1):10.
PubMed: PM28086796

Guidelines and Recommendations

Abstract Not Available

29. Bai Y, Li F, Wang SL, et al. Chinese expert consensus on perioperative medications for endoscopic retrograde cholangiopancreatography (ERCP). *J Dig Dis*. 2019;20(3):103-113.
PubMed: PM30604509

Quality Performance Measures

30. Adler DG, Lieb JG2nd, Cohen J, et al. Quality indicators for ERCP. *Gastrointest Endosc.* 2015;81(1):54-66.
PubMed: PM25480099