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CADTH RAPID RESPONSE REPORT: SUMMARY OF ABSTRACTS

Acetaminophen for Chronic Pain in Pediatric Populations: Clinical Effectiveness

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Research Question

What is the clinical effectiveness of acetaminophen for the treatment of chronic pain in pediatric patients?

Key Findings

One overview of systematic reviews and two systematic reviews were identified regarding the clinical effectiveness of acetaminophen for the treatment of chronic pain in pediatric patients.

Methods

A limited literature search was conducted by an information specialist on key resources including MEDLINE and EMBASE 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 acetaminophen and pediatric chronic pain. Where possible, retrieval was limited to the human population. The search was also limited to English language documents published between January 1, 2015 and May 5, 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	Pediatric patients with chronic pain, including pain from chronic daily headaches, migraines, back pain, abdominal pain, idiopathic local pain, chronic widespread pain and fibromyalgia, and complex regional pain syndrome
Intervention	Acetaminophen (paracetamol)
Comparator	Other pharmacological medications (e.g., gabapentin, pregabalin, amitriptyline, nortriptyline, duloxetine, ibuprofen, naproxen, ketorolac) Placebo Non-pharmacological interventions (e.g., physiotherapy, exercise, counseling, neurostimulation)
Outcomes	Clinical effectiveness (e.g., change in pain symptoms, change in quality of life, functional outcomes, disability)
Study Designs	Health technology assessments, systematic reviews, randomized controlled trials, non-randomized studies

Results

One overview of systematic reviews[1] and two systematic reviews[2,3] were identified regarding the clinical effectiveness of acetaminophen for the treatment of chronic pain in pediatric patients. No relevant health technology assessments, randomized controlled trials, or non-randomized studies were identified.

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

Overall Summary of Findings

One overview of systematic reviews[1] and two systematic reviews[2,3] were identified regarding the clinical effectiveness of acetaminophen (also commonly referred to as paracetamol) for the treatment of chronic pain in pediatric patients. The authors of the identified overview of systematic reviews evaluated acetaminophen and ibuprofen for treating pain in children.[1] The authors found supporting evidence in one of the systematic reviews regarding safety outcomes for acetaminophen use.[1] Additionally, the systematic reviews reporting on efficacy and adverse events for acetaminophen and ibuprofen had no overall conclusion regarding effectiveness.[1] The second identified study was a systematic review regarding the efficacy and adverse events of acetaminophen use for chronic non-cancer pain in children.[2] The authors found no evidence that was considered eligible for inclusion in the systematic review and therefore no conclusion could be made regarding the use of acetaminophen for the treatment of chronic non-cancer pain in children.[2] The last identified study was a systematic review which examined pharmacological interventions versus placebo for migraine treatment in children.[3] Acetaminophen was identified in one primary study, however, the authors reported that acetaminophen was not superior to placebo for migraine symptom relief.[3]

References Summarized

Health Technology Assessments

No literature identified.

Overview of Systematic Reviews

1. Radman M, Babic A, Runjic E, et al. Revisiting established medicines: an overview of systematic reviews about ibuprofen and paracetamol for treating pain in children. *Eu J Pain*. 2019 Jul;23(6):1071-1082.
PubMed: PM30793444

Systematic Reviews

2. Cooper TE, Fisher E, Anderson B, Wilkinson NM, Williams DG, Eccleston C. Paracetamol (acetaminophen) for chronic non-cancer pain in children and adolescents. *Cochrane Database Syst Rev*. 2017;8:CD012539.
PubMed: PM28770975

3. Richer L, Billinghurst L, Linsdell MA, et al. Drugs for the acute treatment of migraine in children and adolescents. *Cochrane Database Syst Rev*. 2016 Apr 19;4:CD005220.
PubMed: PM27091010

Randomized Controlled Trials

No literature identified.

Non-Randomized Studies

No literature identified.

Appendix — Further Information

Previous CADTH Report

4. Dosing recommendations for acetaminophen in pediatrics: clinical review and guidelines. Ottawa (ON): CADTH; May 2008; https://cadth.ca/dosing-recommendations-acetaminophen-pediatrics-clinical-review-and-guidelines Accessed 2020 May 19.

Systematic Reviews

Population Not Specified in Abstract

5. Le May S, Ali S, Khadra C, et al. Pain management of pediatric musculoskeletal injury in the emergency department: a systematic review. *Pain Res Manag*. 2016;2016:4809394.
PubMed: PM27445614

Outcomes Not Specified in Abstract

6. Barnes NP. Migraine headache in children. *BMJ Clin Evid*. 2015 Jun 05;pii:0318.
PubMed: PM26044059

Randomized Controlled Trials

Alternative Population

7. Luo S, Ran M, Luo Q, et al. Alternating acetaminophen and ibuprofen versus monotherapies in improvements of distress and reducing refractory fever in febrile children: a randomized controlled trial. *Paediatr Drugs*. 2017 Oct;19(5):479-486.
PubMed: PM28523589

8. Sheehan WJ, Mauger DT, Paul IM, et al. Acetaminophen versus ibuprofen in young children with mild persistent asthma. *N Engl J Med*. 2016 Aug 18;375(7):619-630.
PubMed: PM27532828

Review Article

9. Kacperski J, Hershey AD. Newly approved agents for the treatment and prevention of pediatric migraine. *CNS Drugs*. 2016 09;30(9):837-844.
PubMed: PM27503180