Research Brief

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Controlled-release hydromorphone and risk of infection in adults: a systematic review

Summary

We conducted a systematic review that synthesized the results of 5 studies examining the association between injection of hydromorphone controlled-released (HCR) and high risk of hepatitis C virus (HCV), infective endocarditis (IE) and human immunodeficiency virus (HIV) infection amongst patients who inject drugs (PWID). Very few studies have examined the risk of IE, HCV, and HIV infection after exposure to controlled-release hydromorphone. Very low-quality and scant evidence suggests uncertainty around the risks of blood -borne infections, such as HCV and IE to PWID using this medication.

Implications

The results of this research are of interest and use to health care professionals, clinical policy makers, and researchers. Future research should report on all the PROGRESS -PLUS criteria so that targeted interventions can be developed to address social determinants of health at the same time as addressing harm reduction. Additionally, the lack of evidence suggests more research is needed to accurately examine the risk of infections using HCR.

Reference: Tricco AC, Parker A, Hezam A, et al. Controlled-release hydromorphone and risk of infection in adults: a systematic review. Harm Reduct J. 2023 Apr 28;20(1):60.

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What is the current situation?

- Hydromorphone, a semi-synthetic opioid, is a pain relief treatment and prescribed as a second-line therapy for severe non-malignant pain.
- It has been hypothesized that patients who inject drugs (PWID) can develop hepatitis C virus (HCV), infective endocarditis (IE) and human immunodeficiency virus (HIV) infection from hydromorphone controlled-released (HCR) formulation.
- Association between injection of HCR and high risk of HCV, IE, and HIV infection amongst PWID is not verified.

What is the objective?

- To conduct a systematic review of adult PWID that have been exposed to controlled-release hydromorphone and the risk of acquiring IE, HCV, and HIV.

How was the review conducted?

- We used the Cochrane handbook to guide our review conduct, which was reported using the Preferred Reporting Items for Systematic reviews and Meta-Analyses (PRISMA) Statement.
- We searched MEDLINE, EMBASE and Evidence Based Medicine reviews databases were searched from inception until September 2021.
- Two reviewers performed citation screening and appraised risk of bias using Newcastle-Ottawa scale and Effective Practice and Organization tool.
- PROGRESS-PLUS framework was used to assess equity issues.
- All included studies had adults older than 18 years, HCR intake through any mode of administration, methodology of randomized controlled trials, quasi-randomized trials, non-randomized trials, controlled before and after studies, interrupted time series, cohort studies, and case–control studies.
- The HCR intake comparators were immediate release (oral) or injectable hydromorphone, or exposure to other opioids.
- Meta-analysis was not feasible due to heterogeneity across the studies.

What did the review find?

- After screening 3,231 potentially relevant citations we screened 626 studies at the full text level.
- 5 studies conducted in Canada were included—4 cohort studies and 1 case-controlled study.
- Risk of bias varied across the studies.
- Gender and some PROGRESS-PLUS criteria (race, housing, and employment) were reported for 2 studies.
- Some studies reported a high risk of acquiring infection associated with HCR; one study did not conclude any association between the 2 variables.

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