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Extended Research Article

Interventions to safely and effectively reduce (taper) use of opioids in chronic non-cancer pain: a systematic review

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Scientific summary

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Scientific summary

Background

It is estimated that chronic pain affects between one-third to a half of the UK population. Chronic pain is thought to arise as a dynamic interaction between biological, psychological and social factors and is difficult to treat. Opioids are commonly prescribed for the management of chronic non-cancer pain, but they have important limitations and current evidence does not support their long-term use. People taking opioids may therefore need support to reduce or stop their use. Low-quality evidence indicates that people can reduce or stop their opioid use and experience reduced pain, but research has focused on limited effectiveness outcomes and not on the factors that influence outcomes for, and the experiences of, different groups of people who require opioid tapering.

Objectives

The main aims of the research were to inform better practice, pathways and service design to support people with chronic non-cancer pain to reduce or stop their use of opioids and address inequalities in access.

Our objectives were to evaluate published evidence on:

- effectiveness, safety [including adverse effects, adverse event (AE)] and acceptability of interventions to reduce opioid use
- barriers and facilitators (B&F) to effective intervention
- inequalities in access to, acceptability of and benefiting from interventions.

Methods

We undertook four systematic reviews of the published evidence on effectiveness, safety (including adverse effects, AE) and acceptability of interventions to reduce opioid use; the B&F to effective intervention and inequalities in access to or benefiting from interventions. Searches were conducted in four databases [MEDLINE, EMBASE, Cochrane Central Register of Controlled Trials, PsycInfo® (American Psychological Association, Washington, DC, USA)], four trial registries (EU-CTR, ISRCTN, Australian New Zealand Clinical Trials Register, ClinicalTrials.gov), four websites (National Institute for Health and Care Research – be part of research, National Institute for Health and Care Excellence Evidence Search, Health Management Information Consortium, British Pain Society Members area) and two academic repositories (Google Scholar, CORE.ac.uk). Additional strategies included searching the reference lists of topic-relevant systematic reviews and our included studies, citation searches and suggestions from experts and clinicians working in the field. All searches were updated in September 2022.

Articles were independently assessed for inclusion by at least two reviewers using prespecified eligibility criteria: (1) adults with chronic non-cancer pain, (2) prescription opioid use of at least 3 months and (3) the intervention aimed to reduce or discontinue the use of opioids. The relevant outcomes differed between the four reviews as did the eligible study designs. Exclusion criteria for all reviews were: papers published prior to 2000, non-English language papers and publications that were editorials, theses, conference abstracts, letters or commentaries. Both data extraction and assessment of risk of bias were conducted by one reviewer and checked for accuracy by a second. Data extraction was done using pre-piloted forms. Risk of bias was assessed using the Cochrane Risk-of-Bias tool for randomised controlled trials and the appropriate Critical Appraisal Skills Programme tool was used for cohort, case-control and qualitative studies.

For the reviews of effectiveness and safety, data were synthesised and presented using tables and narrative review. Meta analyses were not appropriate for the effectiveness or adverse effects reviews. For the B&F review, qualitative data were analysed following methods for thematic synthesis.

Results

A total of 44 studies (reported across 52 papers) were included in at least 1 of the 4 reviews. In total, 27 studies were included in the effectiveness review, 7 in the adverse effects review and 16 in the B&F review. All but two studies provided evidence for the inequalities review.

Effectiveness and safety of interventions to reduce opioid use

The characteristics of the included studies were heterogeneous and different intervention approaches were examined. We identified similar limitations to previous reviews, in that there was variation across the functions of the interventions investigated and in the reported outcomes. Many studies were non-comparative, had short follow-up periods and/or experienced high dropout rates. Two studies were of taper-only interventions (i.e. sequential dose reduction), 6 studies examined interventions that could be used as adjuncts to tapering (including acupuncture and mindfulness training), 11 studies were of interventions that involved tapering plus support and 8 studies were of an intervention aimed at changing health services. Overall, 11 studies included a comparator, and 16 studies were non-comparative.

Fifteen studies reported effects on pain. There was no difference in pain severity between intervention and control groups across seven of eight comparative studies that reported effects on pain. All but two of the included studies reported at least one measure of change in opioid use, and across many of the studies, patients achieved reductions in opioid dose. The proportion of patients who ceased opioid use varied across studies and some studies reported evidence of later relapse. While cessation of opioid use is an outcome that is clinically important, defining the level of reduction in opioid use that is clinically relevant is problematic. A range of other outcomes, including anxiety and depression and sleep quality, were examined across the included studies but there was no clear pattern of effect. None of the seven studies that reported AEs reported any serious AEs, and no patients were reported to have withdrawn from a study due to an AE. Few studies examined intervention acceptability. Further, at least two studies experienced significant issues related to dropouts and slow enrolment into the trial respectively.

Barriers and facilitators of effective intervention

Eight barriers and eight facilitators were identified. They highlight the complex nature of the tapering process with the potential for multiple interdependent, behavioural, structural and contextual barriers to arise. To improve the chances of a successful tapering outcome, there is a need for a whole systems approach that is patient-centred and recognises that tapering is a dynamic, individualistic, intensive process. Our findings reinforce the perspective that the design and delivery of successful opioid-tapering initiatives requires careful consideration of individual-level factors and that these individual-level factors have implications for interpersonal, organisational and environmental level approaches to opioid tapering. Crucial to the success of opioid tapering, is both a patient and provider's willingness to taper and the ability of a patient to maintain a taper.

Inequalities in access to or benefitting from intervention

Most studies collected and reported baseline data according to the PROGnosis RESearch Strategy partnership-Plus categories, but few considered the impact of patient demographics on effectiveness or whether inequalities existed in access to opioid tapering. Consequently, little is known about opioid-tapering interventions and their impact on inequalities. Our findings suggest that patients who are male and older experience a worse tapering outcome. Mixed results were found for the impact of comorbidities on tapering outcomes. For race/ethnicity, occupation and socioeconomic status, no significant differential associations were observed.

Conclusions

Our evidence synthesis shows that evidence to support any opioid reduction intervention for the tapering of opioids in people with chronic non-cancer pain is mixed and uncertain. With none of the studies done in the UK, the generalisability of our findings to NHS clinical practice is uncertain. No included study reported serious AEs, and no patients were reported to have withdrawn from a study due to an AE. Our review findings also reinforce the perspective that the design and delivery of successful opioid-tapering interventions require careful consideration

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of individual-level factors and demonstrate the potential for interventions to widen inequalities in relation to both effectiveness and access.

Stakeholders commenting on our findings suggest that practitioners agree that valuing relationships and addressing fear and stigma are key, and that upskilling in the use of behaviour change techniques and support for both patients and practitioners in readiness for change would support tapering.

Study registration

This study is registered as PROSPERO CRD42020171135.

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