Benefits and Harms of Treatments for Chronic

Non-Specific Low Back Pain Without

Radiculopathy: Systematic Review

and Meta-analysis

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Background context: Currently, there are no published studies that compare non-pharmacological, pharmacological and invasive treatments for chronic low back pain in adults and provide summary statistics for benefits and harms.

Purpose: The aim of this review was to compare the benefits and harms of treatments for the management of chronic low back pain without radiculopathy and to report the findings in a format that facilitates direct comparison (Benefit-Harm Scale: level 1 to 7).

Design: Systematic review and meta-analysis of randomized controlled trials, including trial registries, from electronic databases up to 23rd May 2022.

Patient sample: Adults with non-specific chronic low back pain, excluding radicular pain in any clinical setting.

Outcome measures: Comparison of pain at immediate-term (≤2 weeks) and short-term (>2 weeks to ≤12 weeks) and serious adverse events using the Benefit-Harm Scale (level 1 to 7).

Methods: This was a registered systematic review and meta-analysis of randomized controlled trials. Interventions included non-pharmacological (acupuncture, spinal manipulation only), pharmacological and invasive treatments compared to placebo. Best evidence criteria was used. Two independent reviewers conducted eligibility assessment, data extraction and quality appraisal.

Results: The search retrieved 17,362 records. Three studies provided data on the benefits of interventions, and 30 provided data on harms. Studies included interventions of acupuncture (n = 8); manipulation (n = 2); pharmacological therapies (n = 9), including NSAIDs and opioid analgesics; surgery (n = 8); and epidural corticosteroid injections (n = 3). Acupuncture (standardized mean difference (SMD) –0.51, 95%CI –0.88 to –0.14, n = 1 trial, moderate quality of evidence, benefit rating of 3) and manipulation (SMD –0.39 (96%CI –0.56 to –0.21, n = 2 trials, moderate quality of evidence, benefit rating of 5) were effective in reducing pain intensity compared to sham. The benefit of the other interventions was scored as uncertain due to not being effective, statistical heterogeneity preventing pooling of effect sizes, or the absence of relevant trials. The harms level warnings were at the lowest (e.g. indicating rarer risk of events) for acupuncture, spinal manipulation, NSAIDs, combination ingredient opioids, and steroid injections, while they were higher for single ingredient opioid analgesics (level 4) and surgery (level 6).

Conclusions: There is uncertainty about the benefits and harms of all the interventions reviewed due to the lack of trials conducted in patients with chronic non-specific low back pain without radiculopathy. From the limited trials conducted, non-pharmacological interventions of acupuncture and spinal manipulation provide safer benefits than pharmacological or invasive interventions. However, more research is needed. There were (also) high harms ratings for opioids and surgery.

Registration: This review was registered on the International Prospective Register of Systematic Reviews.

Keywords: chronic low back pain; meta-analysis; non-surgical treatment; randomized controlled trial; spine surgery; systematic review.

From the FULL TEXT Article:

Introduction

Low back pain (LBP) is the leading cause of disability worldwide, with increasing prevalence noted with increased age. [1] In 2019, over 568 million people had LBP globally, with LBP more common in females than males. [1] It is estimated that between 5% and 10% of acute cases of low back pain will develop into chronic low back pain (low back pain lasting longer than 12 weeks). The burden of low back pain continues to be costly. [2] For example, in the USA in 2016, $134.5 billion (95% CI, $122.4 to $146.9 billion) was spent on spinal pain (back and neck pain), with 57.2% paid by private insurers. This represented the condition with the highest health care expenditure among 154 conditions reviewed. [3]

Clinical guidelines for managing chronic low back pain generally recommend non-pharmacological therapies as the first-line treatment for low back pain. [4, 5] Therapies such as spinal manipulative therapy and acupuncture are recommended in clinical guidelines in the USA [6], but the latter is not recommended in the United Kingdom. [7] In cases where pain persists, pharmacological therapies are commonly prescribed, such as non-steroidal anti-inflammatory drugs (NSAIDs) or opioid analgesics. These classes of medicines come with individual risks, including increased risk of cardiovascular events in the case of NSAIDs [8] or increased risk of addiction and misuse in the case of opioid analgesics. [9] Furthermore, pharmacological therapies may not resolve a patient's pain. In cases of severe, disabling, or unresolved pain, corticosteroid injections or surgery may be recommended after thorough review by a tertiary care physician. However, these management strategies can be costly, and they pose a greater risk of adverse events than non-invasive options. There is also no guarantee that a patient's pain will be resolved following these interventions.

The clinical recommendation of a particular pain management strategy should reflect a shared decision-making model that considers both a treatment's benefits and its potential harms. [10, 11] Clear evidence-based information is needed to assess the benefits and harms of treatments for the management of chronic low back pain. Patients expect to receive straightforward recommendations, and it has been shown that a clear explanation can reduce patient fears. [12] Although most clinical practice guidelines are based on systematic reviews and the current literature, data about the benefits (eg pain reduction) and harms (eg serious adverse events) are reported separately, which limits direct comparison and requires a certain level of health literacy, on the part of the health care provider, for correct interpretation. Furthermore, some previous systematic reviews have not included chronic low back pain for example [13] or have not reported serious adverse events as an outcome. [14] Currently, there are no published studies that compare non-pharmacological, pharmacological and invasive treatments for chronic low back pain in adults and provide summary statistics for benefits and harms. The aim of this systematic review was to compare the benefits and harms of non-pharmacological, pharmacological and invasive treatments for the management of adults with non-specific chronic low back pain without radiculopathy. A secondary aim was to collect benefits and harms data for the Benefit-Harm Scale, which aims to summarize the benefits and harms in a simple format that is easy for patients to understand.

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