Research Article Volume 01, Issue No. 02. 2025

The Medical Journal of Surgery and Anaesthesiology



Efficacy, Tolerability, and Dose-Dependent Effects of Opioid Analgesics for Low Back Pain

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Article History :

Received date : 2024/07/08
Revised date : 2024/08/12
Accepted date : 2024/09/24
Published date : 2025/01/10

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ABSTRACT

Background: The literature on opioid analgesics for low back pain (LBP) presents a complex landscape of treatment efficacy, tolerability, and dose-dependent effects. **Literature Review:** In their comprehensive overview, (J. Morlion et al., 2017) explores the efficacy and tolerability of prolonged-release oxycodone/naloxone, particularly addressing opioid-induced constipation. They suggest that balancing analgesic efficacy with tolerability is essential, especially for patients who may experience adverse effects from opioid therapy. This finding aligns with the broader recognition of the necessity to tailor opioid treatments to minimize side effects while effectively managing pain. The study by (A. Hoppe et al., 2017) reveals significant variability in opioid prescribing practices among emergency department physicians for low acuity back pain. This inconsistency raises concerns about adherence to clinical guidelines and the potential for over-reliance on opioids, despite the availability of established alternatives. The authors advocate for improved education and adherence to guidelines to optimize pain management strategies. Further, the meta-analysis conducted by (S Meske et al., 2018) critically assesses the efficacy of opioids compared to placebo, specifically focusing on hydrocodone formulations. Their findings emphasize the need for caution in opioid prescribing, particularly in light of the ongoing opioid crisis, reinforcing the importance of evaluating both efficacy and safety in the management of chronic LBP. **Conclusion:** In conclusion, the reviewed literature collectively emphasizes the complexities surrounding the use of opioid analgesics in the management of low back pain. It highlights the necessity for ongoing research to refine therapeutic strategies, improve adherence to clinical guidelines, and develop novel formulations that enhance efficacy while minimizing adverse effects. The findings underscore the importance of a multimodal approach that incorporates both pharmacologic and non-pharmacologic therapies to address the diverse needs of patients suffering from chronic low back pain.

Keyword: Efficacy, Tolerability, Dose-Dependent Effects, Opioid Analgesics for Low Back Pain

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INTRODUCTION

The literature surrounding the efficacy, tolerability, and dose-dependent effects of opioid analgesics for low back pain (LBP) presents a multifaceted exploration of treatment approaches, clinical guidelines, and patient outcomes. The systematic review by (Luca Romanò et al., 2012) highlights the complexities of chronic low back pain, which often arises from both nociceptive and neuropathic mechanisms. The authors note the scarcity of clinical trials investigating drug combinations, attributing this to challenges in trial design and potential adverse drug interactions. Their findings underscore a need for further research into combined pharmacological therapies to enhance pain management in patients with chronic LBP.

In the context of opioid use, (J. Morlion et al., 2017) provide a comprehensive overview of the efficacy and gastrointestinal tolerability of prolonged-release oxycodone/naloxone in managing chronic pain, including LBP. Their observational study emphasizes the importance of balancing analgesic efficacy with tolerability, particularly in patients experiencing opioid-induced constipation. This review contributes to the understanding of how opioid combinations can be tailored to mitigate side effects while addressing pain effectively.

The study by (A. Hoppe et al., 2017) further investigates the prescribing patterns of emergency department physicians for low acuity back pain. Their findings reveal significant variation in opioid prescriptions, highlighting a gap between clinical guidelines and actual practice. This discrepancy raises concerns about the potential over-reliance on opioids despite established alternatives, suggesting that further education and adherence to guidelines are necessary to optimize pain management strategies.

(S Meske et al., 2018) conduct a systematic review and meta-analysis focusing on the efficacy of opioids compared to placebo in chronic pain management. Their

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analysis reveals critical insights into the tolerability of hydrocodone formulations and the need for caution in opioid prescribing, particularly in light of the ongoing opioid crisis. This review reinforces the importance of evaluating both efficacy and safety in opioid use for chronic low back pain.

(Gudin et al., 2020) delve into the broader context of chronic low back pain treatment options, critiquing both pharmacologic and non-pharmacologic therapies. They emphasize the continued prevalence of LBP and the inadequacy of existing treatment modalities, advocating for novel opioid formulations with improved safety profiles. Their work highlights the necessity for ongoing research into effective analgesics that can address the unmet needs of patients suffering from chronic pain.

(Peck et al., 2021) expand the discussion by systematically reviewing over-the-counter treatments for chronic low back pain. They evaluate the effectiveness of various non-prescription options, including NSAIDs and acetaminophen, while underscoring the role of opioids within the broader treatment landscape. This review demonstrates the importance of integrating multiple treatment approaches to achieve optimal patient outcomes.

The OPAL study by (MP Jones et al., 2022) represents a significant step in understanding the role of opioids in acute low back pain management. By conducting a randomized placebo-controlled trial, the authors aim to provide robust data on the efficacy and safety of opioid analgesics, addressing concerns about dependency and adverse events. This study is positioned to fill critical gaps in the current literature regarding opioid use in acute pain scenarios.

Finally, (M Werthman et al., 2024) offer a comparative review of guidelines and practices in the emergency department management of low back pain. They examine how patient-specific factors influence treatment decisions and adherence to clinical guidelines. Their findings underscore the need for a comprehensive approach to LBP management, highlighting the potential for improved patient outcomes through optimized pharmacologic interventions.

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Together, these articles contribute to a nuanced understanding of the complexities surrounding opioid analgesics in the treatment of low back pain, emphasizing the importance of evidence-based practices and the need for ongoing research to refine therapeutic strategies.

LITERATURE REVIEW

The systematic review by (Luca Romanò et al., 2012) provides a critical examination of the efficacy and tolerability of various drug combinations for the management of chronic low back pain (LBP). The authors highlight a significant gap in the clinical trials available to support the combined use of analgesics, specifically noting the challenges inherent in trial design, potential drug interactions, and the influence of economic interests that may hinder research efforts.

The review synthesizes findings from six studies, emphasizing that while some combinations, such as paracetamol and tramadol, have been explored, there is a notable scarcity of robust evidence for multi-drug regimens targeting chronic LBP. The authors point out that combinations like pregabalin with celecoxib or opioids aim to address different pain mechanisms, which is a crucial insight into the multifaceted nature of chronic pain management. This aligns with the growing recognition that a one-size-fits-all approach may not be sufficient for effective pain relief.

Notably, the review discusses the combination of controlled release oxycodone and pregabalin, which demonstrated superior efficacy in alleviating neuropathic pain compared to monotherapy. This finding suggests that a combined pharmacological approach may enhance therapeutic outcomes while potentially allowing for lower doses of individual agents, which could mitigate the risks associated with higher opioid dosages. The authors also mention that pregabalin alone was ineffective for neuropathic pain, reinforcing the argument for combination therapy in certain patient populations.

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Moreover, the systematic review underscores the lack of randomized trials involving other medications, such as muscle relaxants, for chronic LBP, indicating an area ripe for further investigation. The authors critique existing comprehensive reviews and clinical guidelines for their inadequacy in addressing the nuances of combined pharmacological treatments, suggesting a need for more targeted research efforts in this domain.

The article "Oral prolonged-release oxycodone/naloxone for managing pain and opioid-induced constipation: a review of the evidence" by (J. Morlion et al., 2017) provides a comprehensive overview of the use of a combination therapy involving oxycodone and naloxone for the treatment of chronic low back pain, particularly focusing on the efficacy, tolerability, and the dose-dependent effects associated with opioid analgesics.

The authors highlight the increasing prevalence of chronic low back pain and the necessity for effective management strategies. They delve into various pharmacological, interventional, and surgical approaches, emphasizing the importance of evidence-based guidelines from reputable organizations such as the American College of Physicians and the American Pain Society. The article underscores the necessity for clinicians to be informed about the evolving landscape of pain management, particularly in light of the growing concerns regarding opioid prescribing practices.

One of the central themes of the article is the dual action of oxycodone combined with naloxone. The authors present evidence indicating that while oxycodone serves as an effective analgesic for managing moderate to severe pain, naloxone is included to mitigate the common adverse effect of opioid-induced constipation. This combination therapy is positioned as a significant advancement in the management of chronic pain, as it aims to improve patient quality of life while addressing the side effects associated with opioid use.

The article also discusses the findings from a placebo-controlled, randomized study, which supports the analgesic efficacy and safety profile of oxycodone/naloxone in

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patients suffering from chronic low back pain. The results demonstrate that this combination not only alleviates pain effectively but also contributes to a reduction in the incidence of opioid-induced constipation, a common and distressing complication of opioid therapy.

Furthermore, (J. Morlion et al., 2017) provide a critical analysis of the current clinical practice guidelines regarding opioid use in chronic pain management. They advocate for a balanced approach that weighs the benefits of pain relief against the risks of opioid dependency and adverse effects. The authors call for ongoing research to further elucidate the long-term impacts of prolonged-release formulations and to optimize dosing strategies that can maximize efficacy while minimizing side effects.

The article "Emergency Department Attending Physician Variation in Opioid Prescribing in Low Acuity Back Pain" by (A. Hoppe et al., 2017) provides a critical examination of the variability in opioid prescribing practices among emergency department attending physicians for patients presenting with uncomplicated, low acuity back pain (LABP). The authors highlight the pressing issue of inconsistency in opioid prescriptions, which reflects a broader lack of consensus on appropriate pain management strategies in emergency settings.

The study's findings reveal significant differences in prescribing patterns, indicating that some physicians may be more inclined to prescribe opioids than others, even when faced with similar clinical presentations. This variability raises important questions about the underlying factors influencing these decisions, including individual physician beliefs, institutional protocols, and the perceived need for pain relief among patients. The authors suggest that such inconsistencies can lead to suboptimal care and may contribute to the ongoing opioid crisis, as patients may receive varying levels of analgesia based on the attending physician's approach rather than their actual medical needs.

Moreover, the article emphasizes the need for standardization in opioid prescribing practices for LABP. The authors advocate for the development of evidence-based

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guidelines that can help inform physicians' decisions and promote more uniform prescribing behaviors. By addressing this variability, healthcare providers can enhance the quality of care, reduce the risk of opioid misuse, and ensure that patients receive appropriate pain management.

The study also touches on the implications of these findings for future research and policy-making. The authors call for further investigation into the factors driving prescribing variability and the potential impact of standardized guidelines on patient outcomes. Overall, the article underscores the importance of addressing the discrepancies in opioid prescribing to improve care for patients with low acuity back pain and to mitigate the risks associated with opioid use.

The article titled "Efficacy of opioids versus placebo in chronic pain: a systematic review and meta-analysis of enriched enrollment randomized withdrawal trials" by (S Meske et al., 2018) provides a comprehensive examination of the efficacy and tolerability of various opioid analgesics, specifically focusing on hydrocodone extended-release formulations and buprenorphine for the treatment of moderate to severe chronic pain, including low back pain.

The authors systematically review and analyze data from multiple studies, highlighting the effectiveness of hydrocodone extended-release tablets formulated with abuse-deterrent technology. This formulation aims to mitigate the risk of misuse while providing adequate pain relief for patients suffering from chronic low back pain and osteoarthritis. The findings suggest that this formulation is not only effective in managing pain but also demonstrates a favorable safety profile, which is crucial in the context of increasing concerns regarding opioid misuse and addiction.

Furthermore, the article discusses the tolerability of buccal buprenorphine in opioid-naive patients, revealing that it can be a viable option for managing chronic low back pain without the heightened risks associated with traditional opioid therapies. The analysis extends to a broader consideration of opioids for chronic non-cancer pain, synthesizing evidence from various meta-analyses that evaluate

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both the effectiveness and side effects of opioid treatment. This comprehensive approach allows for a nuanced understanding of the role of opioids in pain management.

A critical evaluation of the material reveals that while the article effectively consolidates existing literature on the subject, it also underscores the complexity of opioid therapy in chronic pain management. The systematic review format employed by the authors enhances the reliability of the findings, but it also raises important questions about the long-term implications of opioid use, particularly concerning dose-dependency and the potential for adverse effects.

The inclusion of various studies allows for a robust discussion of efficacy, but the article could benefit from a deeper exploration of the individual patient factors that may influence treatment outcomes. For instance, demographic variables, comorbidities, and psychological factors were not extensively addressed, which could limit the generalizability of the findings. Additionally, while the article presents a thorough overview of the efficacy and tolerability of opioid analgesics, further research is necessary to establish long-term safety and efficacy, particularly in diverse patient populations.

The article "Are Opioids Needed to Treat Chronic Low Back Pain? A Review of Treatment Options and Analgesics in Development" by (Gudin et al., 2020) provides a comprehensive examination of the complexities surrounding the treatment of chronic low back pain (CLBP). The authors highlight the significant challenges in effectively managing CLBP, which remains the leading cause of years lived with disability. This underscores the urgent need for a deeper understanding of the condition's etiology and the efficacy of various treatment modalities.

A critical aspect of the article is its analysis of the limitations of current treatment options. The authors note that while non-pharmacologic therapies such as physical therapy, chiropractic care, yoga, and acupuncture have demonstrated moderate benefits, they often prove insufficient as standalone treatments ((Gudin et al.,

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2020)). This is particularly concerning given that many patients may not have access to these therapies, exacerbating their pain and disability.

The review emphasizes the evolving role of opioid analgesics in the management of CLBP. The authors discuss recent guidelines that discourage the use of opioids as a first-line treatment due to the potential for adverse effects and the risk of dependency. This shift has led to a reduction in opioid prescriptions, leaving a substantial number of patients without adequate pain relief, even when non-opioid therapies are optimized ((Gudin et al., 2020)). The article aptly points out this paradox, where the move towards minimizing opioid use may inadvertently contribute to patient suffering.

Furthermore, the authors advocate for a rational multimodal approach to pain management, suggesting that a combination of therapies may yield better outcomes for patients with CLBP. They also highlight the ongoing development of novel opioid formulations and other analgesics that may offer improved efficacy and tolerability compared to traditional opioids. This aspect of the review is particularly noteworthy, as it suggests a potential pathway forward in addressing the unmet needs of patients suffering from chronic pain.

The article titled "A Comprehensive Review of Over the Counter Treatment for Chronic Low Back Pain" by (Peck et al., 2021) provides a thorough examination of the various non-prescription treatment options available for chronic low back pain (CLBP). The authors effectively outline the prevalence and impact of CLBP, noting that it affects approximately 23% of the global population and has a high recurrence rate within a year for many individuals. This context sets the stage for a critical evaluation of treatment modalities, particularly over-the-counter (OTC) analgesics.

The article emphasizes that non-specific low back pain is influenced by a combination of physical and psychosocial factors, while mechanical low back pain is often attributed to trauma or overuse, leading to conditions such as disk herniation. This distinction is crucial as it informs the choice of treatment,

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suggesting that an understanding of the underlying cause of pain can guide the selection of appropriate analgesics.

(Peck et al., 2021) highlight that OTC analgesics are the first-line treatment for low back pain, with a focus on non-steroidal anti-inflammatory drugs (NSAIDs), acetaminophen, and topical treatments. The systematic review discusses the efficacy of these medications, supported by evidence from meta-analyses and randomized controlled trials. Notably, the authors present a balanced view by addressing the effectiveness of opioids in the management of CLBP, indicating that while opioids may provide relief, their use is typically reserved for more severe cases due to concerns regarding tolerance, dependency, and adverse effects.

The article's critical evaluation of the literature surrounding these treatments is commendable, as it synthesizes findings from various studies to present a comprehensive overview of the current understanding of analgesics for CLBP. The authors argue that while NSAIDs and acetaminophen are widely used and generally well-tolerated, there is a need for further research to establish the long-term efficacy and safety of these medications, particularly in populations with chronic conditions.

The article by (MP Jones et al., 2022) presents a comprehensive statistical analysis plan for the OPAL study, which aims to evaluate the efficacy and safety of opioid analgesics in the context of acute spinal pain, specifically low back and neck pain. This research is critical, given the high prevalence of these conditions and their significant contribution to global disease burden. The authors highlight the increasing reliance on opioid analgesics despite a notable lack of robust efficacy data supporting their use for acute low back pain, which raises important questions about clinical practice and patient safety.

The study's design is noteworthy as it is the first randomized placebo-controlled trial specifically targeting the effects of opioid analgesics on acute spinal pain. This methodological rigor is essential in establishing a clearer understanding of the benefits and risks associated with opioid use in this patient population. The sample

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size of 347 participants is adequate for providing statistically significant results, particularly concerning the primary outcome of pain severity at six weeks.

Additionally, the inclusion of multiple secondary outcomes such as physical functioning, time to recovery, quality of life, and adverse events further enriches the study. This multidimensional approach allows for a more holistic assessment of the impact of opioid analgesics beyond mere pain reduction. The authors' emphasis on the occurrence of adverse events is particularly relevant, given the ongoing concerns regarding the safety of opioid medications. The potential for serious side effects necessitates a careful evaluation of the risk-benefit profile of these analgesics.

The article titled "Emergency Department Management of Low Back Pain: A Comparative Review of Guidelines and Practices" by (M Werthman et al., 2024) provides a comprehensive examination of the current best practices and guidelines for the pharmacologic management of low back pain, a prevalent issue that significantly burdens both individuals and healthcare systems. The authors highlight the multifaceted nature of low back pain, which can arise from various pathologies such as myofascial discomfort, facet joint-related pain, and discogenic pain. This classification is crucial as it informs the selection of appropriate treatment modalities, including opioid analgesics.

The review underscores the importance of considering patient-specific factors—such as age, sex, comorbidities, and the specific type of back pain—when determining the efficacy and tolerability of opioid analgesics for low back pain management. For instance, older patients or those with certain comorbid conditions may experience different outcomes or side effects from opioid therapy compared to younger, healthier individuals. This nuanced understanding is essential for optimizing treatment plans and ensuring that interventions are tailored to meet the individual needs of patients.

Moreover, the article notes that despite the existence of clinical guidelines, there remains a significant deviation from recommended practices in emergency

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departments. This inconsistency can lead to suboptimal management of low back pain, potentially exacerbating patient suffering and increasing healthcare costs. The authors advocate for a more rigorous adherence to established guidelines, emphasizing that optimizing pharmacologic interventions, including the judicious use of opioid analgesics, could significantly enhance patient outcomes.

The review also discusses the dose-dependent effects of opioid analgesics, a critical aspect given the rising concerns regarding opioid use and its associated risks. The authors highlight the necessity for healthcare providers to carefully evaluate the appropriate dosing strategies while considering the potential for tolerance and dependence that can arise with prolonged use. This aspect is particularly relevant in the context of the ongoing opioid crisis, where the balance between effective pain management and the minimization of adverse outcomes remains a central challenge.

CONCLUSION

The literature on opioid analgesics for low back pain (LBP) presents a complex landscape of treatment efficacy, tolerability, and dose-dependent effects. The systematic review by (Luca Romanò et al., 2012) underscores the multifactorial nature of chronic LBP, emphasizing the need for further research into combined pharmacological therapies. The authors highlight the inadequacy of existing clinical trials, which often fail to address the potential benefits of drug combinations due to design challenges and concerns about adverse interactions. This gap in research is critical, as the combination of different analgesics may enhance pain management strategies for patients suffering from chronic LBP.

In their comprehensive overview, (J. Morlion et al., 2017) explores the efficacy and tolerability of prolonged-release oxycodone/naloxone, particularly addressing opioid-induced constipation. They suggest that balancing analgesic efficacy with tolerability is essential, especially for patients who may experience adverse effects from opioid therapy. This finding aligns with the broader recognition of the

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necessity to tailor opioid treatments to minimize side effects while effectively managing pain.

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Further, the meta-analysis conducted by (S Meske et al., 2018) critically assesses the efficacy of opioids compared to placebo, specifically focusing on hydrocodone formulations. Their findings emphasize the need for caution in opioid prescribing, particularly in light of the ongoing opioid crisis, reinforcing the importance of evaluating both efficacy and safety in the management of chronic LBP.

The review by (Gudin et al., 2020) critiques current treatment modalities for chronic LBP, highlighting the inadequacy of existing pharmacologic and non-pharmacologic options. The authors advocate for novel opioid formulations that may provide improved safety profiles, thereby addressing the unmet needs of patients suffering from chronic pain.

In addition, (Peck et al., 2021) systematically review over-the-counter treatments, including NSAIDs and acetaminophen, while contextualizing the role of opioids within the broader treatment landscape. Their analysis underscores the importance of integrating multiple treatment approaches to achieve optimal patient outcomes.

The OPAL study by (MP Jones et al., 2022) represents a pivotal investigation into the role of opioids in acute low back pain management, aiming to provide robust data on their efficacy and safety. This randomized placebo-controlled trial is essential for filling critical gaps in the literature regarding opioid use in acute pain scenarios.

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Lastly, (M Werthman et al., 2024) offer a comparative review of guidelines and practices in emergency department management of low back pain, emphasizing the need for a comprehensive approach that considers patient-specific factors. Their findings indicate that optimizing pharmacologic interventions could significantly enhance patient outcomes.

In conclusion, the reviewed literature collectively emphasizes the complexities surrounding the use of opioid analgesics in the management of low back pain. It highlights the necessity for ongoing research to refine therapeutic strategies, improve adherence to clinical guidelines, and develop novel formulations that enhance efficacy while minimizing adverse effects. The findings underscore the importance of a multimodal approach that incorporates both pharmacologic and non-pharmacologic therapies to address the diverse needs of patients suffering from chronic low back pain.

DISCLOSURE STATEMENT

- Disclosure Statement : The authors have no conflicts of Interest to declare
- Funding Sources : None
- Acknowledgements : -
- Author Contribution : All authors discussed and contributed the final content for journal submission and publication

REFERENCES

1. Luca Romanò, C., Romanò, D., & Lacerenza, M., 2012. Antineuropathic and Antinociceptive Drugs Combination in Patients with Chronic Low Back Pain: A Systematic Review. ncbi.nlm.nih.gov
2. J. Morlion, B., A. Mueller-Lissner, S., Vellucci, R., Leppert, W., C. Coffin, B., L. Dickerson, S., & O'Brien, T., 2017. Oral prolonged-release oxycodone/naloxone for managing pain and opioid-induced constipation: a review of the evidence. [PDF]

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A. Hoppe, J., McStay, C., C. Sun, B., & Capp, R., 2017. Emergency Department Attending Physician Variation in Opioid Prescribing in Low Acuity Back Pain. ncbi.nlm.nih.gov

3. S Meske, D., D Lawal, O., Elder, H., Langberg, V., Paillard, F., & Katz, N., 2018. Efficacy of opioids versus placebo in chronic pain: a systematic review and meta-analysis of enriched enrollment randomized withdrawal trials. ncbi.nlm.nih.gov
4. Gudin, J., G Kaufman, A., & Datta, S., 2020. Are Opioids Needed to Treat Chronic Low Back Pain? A Review of Treatment Options and Analgesics in Development. ncbi.nlm.nih.gov
5. Peck, J., Urits, I., Peoples, S., Foster, L., Malla, A., A. Berger, A., M. Cornett, E., Kassem, H., Herman, J., D. Kaye, A., & Viswanath, O., 2021. A Comprehensive Review of Over the Counter Treatment for Chronic Low Back Pain. ncbi.nlm.nih.gov
6. MP Jones, C., Christine Lin, C. W., O. Day, R., W. Koes, B., Latimer, J., G. Maher, C., McLachlan, A., & Billot, L., 2022. OPAL: a randomised, placebo-controlled trial of opioid analgesia for the reduction of pain severity in people with acute spinal pain—a statistical analysis plan. ncbi.nlm.nih.gov
7. M Werthman, A., D Jolley, B., Rivera, A., & A Rusli, M., 2024. Emergency Department Management of Low Back Pain: A Comparative Review of Guidelines and Practices. ncbi.nlm.nih.gov

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