

Opioids for osteoarthritis pain: benefits and risks

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Clinical question

What is the evidence for opioids for osteoarthritis (OA) pain?

Evidence

Benefits: There is no high-quality evidence that opioids improve function more than nonopioid analgesics.^{1,2}

- Systematic review: nontramadol opioids for OA³:
 - 10 RCTs (N=2268) with maximum 12-week treatment.
 - More patients reported 50% improvement in pain than with placebo (NNT=25).
 - Median dose: 51 mg of morphine equivalent per day; higher doses did not increase benefits.
 - Function improved 0.7 points (scale 0 to 10).
- Systematic review: tramadol for OA⁴:
 - 11 RCTs (N=1939) with maximum 12-week treatment.
 - More patients reported 50% improvement or at least “moderate” improvement than with placebo (NNT=6).
 - Function improved 0.3 points (scale 0 to 10).
 - Side effects caused 1 in 8 patients to stop treatment.

Harms: Retrospective cohort study of 12 840 patients with arthritis (mean age 80) comparing NSAIDs with opioids⁵:

- Patients prescribed opioids had a higher risk of fracture than those prescribed NSAIDs (estimated NNH=26).
- Opioids increased risk of cardiovascular events, hospitalization, and overall mortality (estimated NNH=17-27).
- Opioids and NSAIDs had similar risk of GI bleeding.
- Opioid risk is likely exaggerated by selection bias and confounding.

Context

- Only small differences are seen between OA treatments and placebo (standard mean difference [95% CI]): acetaminophen 0.13 (0.22 to 0.04),⁶ NSAIDs 0.23 (0.16 to 0.31),⁷ and nontramadol opioids 0.36 (0.26 to 0.47).³
 - Pain reduction is equivalent for topical and oral NSAIDs in most cases.⁸
- International OA guidelines recommend strong opioids only in exceptional cases.⁹
- Opioid risks are dose-dependent: More than 100 mg of morphine equivalent per day (eg, about 20 mg of hydro-morphine or 66 mg of oxycodone) is associated with increased risk of opioid-related mortality.^{10,11}
- Prescription opioids are a common source of opioid misuse.¹² Most opioid overdose deaths occur in individuals who are prescribed opioids.¹³

Bottom line

No research demonstrates long-term improvement in OA pain or function with opioids. In elderly patients,

it is unclear if opioids or NSAIDs are safer. Opioids should not be routinely used in OA but if they are necessary, use them with caution and monitor carefully.

Implementation

When patients are in chronic pain, clinicians are obliged to treat (beneficence), but are also obliged to not do further harm (nonmaleficence). The Cochrane Musculoskeletal Group produced a patient decision aid to help health care providers work with patients to balance these goals when treating OA pain.¹⁴ Consider having patients evaluated for joint replacement if pain from OA is severe, as surgery improves long-term function.¹⁵

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The opinions expressed in this Tools for Practice article are those of the authors and do not necessarily mirror the perspective and policy of the Alberta College of Family Physicians.

References

1. Furlan AD, Sandoval JA, Mailis-Gagnon A, Tunks E. Opioids for chronic noncancer pain: a meta-analysis of effectiveness and side effects. *CMAJ* 2006;174(11):1589-94.
2. Ballantyne JC, Shin NS. Efficacy of opioids for chronic pain: a review of the evidence. *Clin J Pain* 2008;24(6):469-78.
3. Nüesch E, Rutjes AWS, Husni E, Welch V, Jüni P. Oral or transdermal opioids for osteoarthritis of the knee or hip. *Cochrane Database Syst Rev* 2009;(4):CD003115.
4. Cepeda MS, Camargo F, Zea C, Valencia L. Tramadol for osteoarthritis. *Cochrane Database Syst Rev* 2006;(3):CD005522.
5. Solomon DH, Rassen JA, Glynn RJ, Lee J, Levin R, Schneeweiss S. The comparative safety of analgesics in older adults with arthritis. *Arch Intern Med* 2010;170(22):1968-76.
6. Towheed TE, Maxwell L, Judd MG, Catton M, Hochberg MC, Wells G. Acetaminophen for osteoarthritis. *Cochrane Database Syst Rev* 2006;(1):CD004257.
7. Bjordal JM, Ljunggren AE, Klovning A, Slørdal L. Non-steroidal anti-inflammatory drugs, including cyclo-oxygenase-2 inhibitors, in osteoarthritic knee pain: meta-analysis of randomised placebo controlled trials. *BMJ* 2004;329(7478):1317.
8. Allan GM, Turner R. *Topical NSAIDs: do they top placebo or oral NSAIDs?* Edmonton, AB: Alberta College of Family Physicians; 2011.
9. Zhang W, Moskowitz RW, Nuki G, Abramson S, Altman RD, Arden N, et al. OARSI recommendations for the management of hip and knee osteoarthritis, part I: critical appraisal of existing treatment guidelines and systematic review of current research evidence. *Osteoarthritis Cartilage* 2007;15(9):981-1000.
10. Gomes T, Mamdani MM, Dhalla IA, Paterson JM, Juurlink DN. Opioid dose and drug-related mortality in patients with nonmalignant pain. *Arch Intern Med* 2011;171(7):686-91.
11. Bohnert AS, Valenstein M, Bair MJ, Ganoczy D, McCarthy JF, Ilgen MA, et al. Association between opioid prescribing patterns and opioid overdose-related deaths. *JAMA* 2011;305(13):1315-21.
12. Sproule B, Brands B, Li S, Catz-Biro L. Changing patterns in opioid addiction. Characterizing users of oxycodone and other opioids. *Can Fam Physician* 2009;55:68-9.e1-5.
13. Dhalla IA, Mamdani MM, Silvillotti ML, Kopp A, Qureshi O, Juurlink DN. Prescribing of opioid analgesics and related mortality before and after the introduction of long-acting oxycodone. *CMAJ* 2009;181(12):891-6.
14. McGowan J, Hawker G, O'Connor A, Saarimaki A, Rader T, Tugwell P. *What are my options for managing hip or knee osteoarthritis?* Ottawa, ON: University of Ottawa; 2010. Available from: <http://musculoskeletal.cochrane.org/sites/musculoskeletal.cochrane.org/files/uploads/What%20are%20my%20options%20for%20managing%20hip%20or%20knee%20osteoarthritis%20-%20April%202010.pdf>. Accessed 2012 Mar 6.
15. Ethgen O, Bruyère O, Richey F, Dardennes C, Reginster JY. Health-related quality of life in total hip and total knee arthroplasty. A qualitative and systematic review of the literature. *J Bone Joint Surg Am* 2004;86-A(5):963-74.



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