

From The Medical Letter on Drugs and Therapeutics

Drugs for Osteoarthritis

Many different drugs are used for treatment of osteoarthritis pain, but none of them prevent progression of the disease. Nonpharmacologic approaches including weight management, exercise, tai chi, physical therapy, assistive devices, and total joint arthroplasty can also be used. The American College of Rheumatology (ACR) has published new guidelines for the management of osteoarthritis of the hip, hand, and knee.

We have reprinted a summary and a Table containing key information about these drugs from a recent comprehensive review in *The Medical Letter on Drugs and Therapeutics*.

—Edward Livingston, MD, Deputy Editor, *JAMA*



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Summary: Drugs for Osteoarthritis

- NSAIDs are effective for treatment of osteoarthritis pain, but they can cause serious GI, renal, and cardiovascular toxicity, especially in older adults.
- Topical NSAIDs should be considered before oral NSAIDs for treatment of knee or hand osteoarthritis pain.
- COX-2 selective celecoxib does not interfere with platelet function and is less likely than nonselective NSAIDs to cause GI toxicity. It may have a prothrombotic effect, but in the dosage recommended for treatment of osteoarthritis (200 mg/d), its cardiovascular safety appears to be comparable to that of naproxen and ibuprofen.
- Acetaminophen is less effective than NSAIDs, but in doses ≤ 4 g/d it generally causes fewer adverse effects. In higher doses, it can cause severe hepatotoxicity. Acetaminophen can be tried when topical and oral NSAIDs are not recommended or poorly tolerated.
- The serotonin and norepinephrine reuptake inhibitor duloxetine is another alternative. It is only modestly effective and has many adverse effects.
- Opioids appear to be only moderately more effective than placebo for treatment of osteoarthritis pain, and their continued use can lead to dependence and development of tolerance to their effects. They should be considered a last resort for patients with intractable osteoarthritis pain.
- Intra-articular corticosteroid injections are generally safe and effective for local treatment of osteoarthritis. Pain relief tends to wane by 2 months after administration, but most clinicians wait at least 3 months between injections.

Table. Some Systemic Analgesics for Osteoarthritis

Drug	Some formulations	Usual dosage ^a	Max daily dose	Cost ^b
Acetaminophen – generic	325, 500 mg tabs;	650 mg qid or	4000 mg	\$4.60
Tylenol (McNeil Consumer)	650 mg ER tabs ^c	1000 mg tid		11.60
Some nonselective NSAIDs				
Diclofenac – Zorvolex (Zyla)	18, 35 mg caps	35 mg tid	105 mg	714.40
Diclofenac potassium – generic	50 mg tabs	50 mg bid or tid	200 mg ^d	62.70
Diclofenac sodium – generic	25, 50, 75 mg DR tabs	100-150 mg divided bid or tid	150 mg	15.90
Extended-release – generic	100 mg ER tabs	100 mg once/d	200 mg ^e	67.50
Voltaren-XR (Novartis)				309.90
Etodolac – generic	200, 300 mg caps;	300 mg bid or tid or 400-500 mg bid	1000 mg	22.50
Extended-release – generic	400, 500 mg tabs			
Fenoprofen – generic	400 mg caps; 600 mg tabs	400-600 mg tid or qid	3200 mg	335.10
Nalfon (Xspire)	400 mg caps			467.80
Flurbiprofen – generic	50, 100 mg tabs	200-300 mg divided bid-qid	300 mg (100 mg/dose)	25.20
Ibuprofen – generic	200, 400, 600, 800 mg	200-400 mg q4-6h	3200 mg	6.50
Advil (Pfizer)	tabs; 200 mg caps ^c		(1200 mg OTC)	8.20
Ketoprofen – generic	50, 75 mg caps	50 mg qid or 75 mg tid	300 mg	85.50
Extended-release – generic	200 mg ER caps	200 mg once/d	200 mg	259.60
Meclofenamate – generic	50, 100 mg caps	50-100 mg qid	400 mg	400.20
Meloxicam – generic	7.5, 15 mg tabs	7.5-15 mg once/d	15 mg	7.90
Mobic (Boehringer Ingelheim)				268.40
Vivlodex (Zyla)	5, 10 mg caps	5-10 mg once/d	10 mg	862.60
Nabumetone – generic	500, 750 mg tabs	500-750 mg bid or tid	2000 mg	29.50
Naproxen – generic ^f	250, 375, 500 mg tabs;	250-500 mg bid	1000 mg ^h	7.40
Naprosyn, EC-Naprosyn (Genentech)	375, 500 mg enteric-coated tabs;			
	25 mg/mL PO susp ^g			133.00

(continued)

Table. Some Systemic Analgesics for Osteoarthritis (continued)

Drug	Some formulations	Usual dosage ^a	Max daily dose	Cost ^b
Naproxen sodium – generic	275, 550 mg tabs	275-550 mg bid	1100 mg ^h	62.50
Anaprox DS (Genentech)	550 mg tabs			558.60
Naproxen sodium OTC – generic	220 mg tabs, caps	220 mg bid or tid	660 mg	2.60
Aleve (Bayer)				6.80
Salsalate – generic	500, 750 mg tabs	1500 mg bid or 1000 mg tid	3000 mg	95.60
Selective COX-2 inhibitor				
Celecoxib – generic	50, 100, 200, 400 mg caps	200 mg once/d or 100 mg bid ^d	400 mg ^j	51.50
Celebrex (Pfizer)				398.40
Serotonin and norepinephrine reuptake inhibitor				
Duloxetine – generic	20, 30, 60 mg delayed-release caps	30 mg once/d for 7 d, then 60 mg once/d	120 mg ^k	21.40
Cymbalta (Lilly)				256.80
Opioid agonist/serotonin and norepinephrine reuptake inhibitor				
Tramadol ^l – generic	50, 100 mg tabs	50-100 mg q4-6 h	400 mg	10.00
Ultram (Janssen)	50 mg tabs			410.40
Extended-release tabs – generic	100, 200, 300 mg ER tabs	100-300 mg once/d	300 mg	63.30
Extended-release caps – generic	100, 150, 200, 300 mg ER caps	100-300 mg once/d	300 mg	229.60
Conzip (Vertical)	100, 200, 300 mg ER caps			341.80

Abbreviations: DR, delayed-release; ER, extended-release.

^a Usual dosage for treatment of osteoarthritis. Dosage adjustments may be needed for hepatic or renal impairment. NSAIDs, acetaminophen, and tramadol should be taken on an as-needed basis.

^b Approximate WAC for 30 days' treatment with the lowest usual dosage using the smallest possible number of whole dosage units. WAC = wholesaler acquisition cost or manufacturer's published price to wholesalers; WAC represents a published catalogue or list price and may not represent an actual transactional price. Source: AnalySource[®] Monthly. April 5, 2020. Reprinted with permission by First Databank, Inc. All rights reserved. ©2020. www.fdbhealth.com/drug-pricing-policy.

^c Available in multiple strengths and dosage forms, alone and in combination with other drugs, both over the counter and by prescription.

^d The maximum recommended daily dose for treatment of osteoarthritis is 150 mg.

^e The maximum recommended daily dose for treatment of osteoarthritis is 100 mg.

^f Naproxen is also available in a fixed-dose combination with the proton pump inhibitor esomeprazole magnesium as Vimovo.

^g The suspension is not available generically. Naprosyn is not available in 250- or 375-mg tabs.

^h In patients who tolerate lower doses, the daily dose of naproxen may be increased to 1500 mg (1650 mg naproxen sodium) for periods of up to 6 months when additional anti-inflammatory or analgesic activity is required.

ⁱ The initial dose should be reduced by 50% in patients who are CYP2C9 poor metabolizers.

^j The maximum recommended daily dose for treatment of osteoarthritis is 200 mg.

^k The maximum recommended daily dose for treatment of osteoarthritis is 60 mg.

^l Not FDA-approved for treatment of osteoarthritis. Tramadol is also available in a fixed-dose combination with acetaminophen (Ultracet, and generics).

ARTICLE INFORMATION

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