U.S. National Library of Medicine
National Center for Biotechnology Information

NLM Citation: LiverTox: Clinical and Research Information on Drug-Induced Liver Injury [Internet]. Bethesda (MD): National Institute of Diabetes and Digestive and Kidney Diseases; 2012-. Gout Medications. [Updated 2017 Jul 19].
Bookshelf URL: https://www.ncbi.nlm.nih.gov/books/

Gout Medications

Updated: July 19, 2017.

OVERVIEW

Gout is a common metabolic disorder caused by high body uric acid levels, and marked by episodic deposition of uric acid crystals in joints (acute gouty arthritis) and other tissues such as the kidney (urate nephropathy or nephrolithiasis). The underlying condition appears to be an increase in total body uric acid stores and is usually marked by hyperuricemia. Hyperuricemia is typically defined as serum uric acid levels greater than 7.0 mg/dL. Gout is more common in men than women and usually has its onset in 4th or 5th decade of life. Approximately 1% of adult Americans report having gout and 5% have some degree of hyperuricemia.

Management of gout can be directed at treatment of acute attacks of gouty arthritis or to long term maintenance therapy directed at preventing attacks or decreasing the risk of uric acid nephropathy or nephrolithiasis. Treatment of acute attacks usually rests on use of nonsteroid antiinflammatory agents such as indomethacin, naproxen, sulindac or celecoxib. Colchicine (1961: Colbenemid and others) is used both during acute episodes and in chronic maintenance therapy. However, the major approach to long term prevention of gout and the complications of uric acid nephropathy is the use of uricosuric acids such as probenecid (1951: Benuryl) and benzbromarone (not available in the United States) and/or inhibitors of xanthine oxidase, such as the xanthine derivative allopurinol (1966: Aloprim) and the newer nonnucleoside xanthine oxidase inhibitors such as febuxostat (2009: Uloric, Adenuric).

Newer approaches to gout include use of lesinurad (Zurampic: 2015), a drug that inhibits the reabsorption of uric acid in the distal tubules of the kidney, and use of recombinant enzymes that metabolize uric acid such as pegloticase (Kystexxa), which is used in combination with xanthine oxidase inhibitors ito treat severe gout, and rasburicase (Elitek: 2002) which is used to treat the hyperuricemia associated with tumor lysis syndrome induced by cancer chemotherapy.

Allopurinol is a well known cause of acute liver disease that can be severe. Benzbromarone has been linked to several cases of severe acute liver injury, for which reason it was not approved for use in the United States. The other medications for gout are exceedingly rare causes of clinically apparent, acute liver injury.

The following drugs are discussed individually:

- Allopurinol
- Benzbromarone
- Colchicine
- Febuxostat
- Lesinurad
- Pegloticase
- Probenecid

- Rasburicase

REFERENCES

References updated: 19 July 2017

Zimmerman HJ. Drugs used to treat gout. Drugs used to treat rheumatic and musculospastic disease. In, Zimmerman, HJ. Hepatotoxicity: the adverse effects of drugs and other chemicals on the liver. 2nd ed. Philadelphia: Lippincott, 1999: pp. 542-4.

(Textbook of hepatotoxicity published in 1999 and before the availability of lesinurad).

Grosser T, Smyth E, FitzGerald GA. Anti-inflammatory, antipyretic, and analgesic agents: pharmacotherapy of gout. In, Brunton LL, Chabner BA, Knollman BC, eds. Goodman & Gilman's the pharmacological basis of therapeutics. 12th ed. New York: McGraw-Hill, 2011, pp. 959-1004.

(Textbook of pharmacology and therapeutics).

Drugs for gout. Med Lett Drugs Ther 2014; 56 (1438): 22-4. PubMed PMID: 24791281.

(Update on medications for gout discusses the urate lowering agents allopurinol, febuxostat, probenecid and pegloticase, but not lesinurad).

Chalasani N, Bonkovsky HL, Fontana R, Lee W, Stolz A, Talwalkar J, Reddy KR, et al.; United States Drug Induced Liver Injury Network. Features and outcomes of 899 patients with drug-induced liver injury: the DILIN Prospective Study. Gastroenterology 2015; 148: 1340-52. PubMed PMID: 25754159.

(Among 899 cases of drug induced liver injury in the US collected between 2004 and 2012, 8 cases were attributed to drugs used for gout [allopurinol in 7 and febuxostat in 1], but no cases were attributed to lesinurad).