



Monosodium urate crystals



DUQUESNE
UNIVERSITY
MYLAN SCHOOL OF PHARMACY

PIC QUESTION OF THE WEEK: 3/07/2011

Q: What is the role of losartan in the treatment of gout and/or hyperuricemia?

A: Gout is a chronic inflammatory disorder which classically presents in the form of acute attacks. These episodes result from the deposition of monosodium urate crystals in joints and periarticular tissue that stimulates an inflammatory response associated with swelling and severe pain. Increased levels of serum uric acid (SUA) may result from its over-production or under-excretion in susceptible individuals. Reduced SUA levels contribute to a reduction and/or prevention of acute gouty attacks. Gout and hyperuricemia are currently managed using agents which decrease uric acid production and/or increase its excretion. Medications historically used to *reduce SUA concentrations* and *prevent* acute attacks include allopurinol and probenecid. *Treatment* options for acute attacks consist of NSAIDs, colchicine, or corticosteroids. In an effort to improve control of SUA levels and decrease the frequency of acute attacks, additional antihyperuricemic medications have been marketed. These include febuxostat (Uloric), a xanthine oxidase inhibitor, and pegloticase (Krystexxa), a parenteral derivative of uricase indicated for patients with treatment resistant hyperuricemia. Losartan, an angiotensin-receptor blocker (ARB) has shown considerable promise in reducing SUA levels. The drug inhibits a renal uric acid transporter that enhances reabsorption of uric acid. It appears to be the only drug in this category capable of reducing uric acid values. In one small study, 13 patients with hypertension and hyperuricemia were randomized to receive either losartan or irbesartan once daily for 4 weeks. Those treated with losartan had a significant decrease in SUA levels while there was little effect in those administered irbesartan. In another trial, 34 hypertensive and hyperuricemic patients were treated with losartan while placebo was administered to 32 patients in the control group. There was a significant decrease observed in SUA levels in the losartan group, whereas uric acid values actually increased in the control group during the six month study period. Several additional studies have supported the efficacy of losartan (50 mg per day) in reducing uric acid concentrations. A recent and extensive review of the management of gout recognized the role of losartan as effective adjunctive therapy for hypertensive patients who are also hyperuricemic.

References:

- Neogi, T. Gout. N Engl J Med 2011;364:443-52.
- Wurznier G, Gerster JC, Chiolero A, et al. Comparative effects of losartan and irbesartan on serum uric acid in hypertensive patients with hyperuricaemia and gout. J Hypertens 2001;19:1855-60.
- Zhu X, Chen J, Cheng M, et al. Efficacy and safety of losartan in treatment of hyperuricemia and posttransplantation erythrocytosis: results of a prospective, open, randomized, case-control study. Transplant Proc 2009;41:3736-42

Photo by: euthman: used under Creative Commons License; <http://www.flickr.com/photos/euthman/4306256393/in/photostream/> (Accessed March 2, 2011)

Adrienne D. Mielnik and Michael D. Machen, Pharm.D. Candidates

The PIC Question of the Week is a publication of the Pharmaceutical Information Center, Mylan School of Pharmacy, Duquesne University, Pittsburgh, PA 15282 (412.396.4600).