Kidney failure and gout – tread carefully!

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Acute gout in a patient with moderate kidney impairment (i.e. GFR < 60mls/min) is a common complication that requires thoughtful therapy.

Is it actually gout?

Classical podagra is distinctive.

Other rarer causes of acutely inflamed joints seen in kidney impairment include calcium pyrophosphate deposition within joints, septic arthritis in the immunosuppressed renal transplant patient, or metastatic calcification overlying joints (especially in patients with high calcium and phosphate levels).

Tophi need to be distinguished from olecranon bursitis; gouty tendonitis can mimic rheumatoid arthritis.

A joint aspirate is the definitive diagnostic test; response to colchicine is suggestive but not absolute proof.

Kidney impairment usually causes non-specific hyperuricaemia (0.45-0.60); this does not aid the diagnosis.

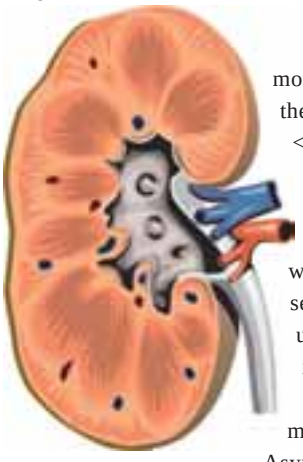
Why did it occur?

Obesity, diabetes, hypertension and increasing age all increase the risk of both kidney impairment and gout. Most attacks occur without an obvious precipitant, but minor trauma, fatigue and surgery are recognised triggers. Look for a recent history of:

- decreased uric acid excretion (volume depletion or diuretics; low-dose aspirin, alcohol or cyclosporin) or
- increased uric acid production (heavy intake of meat, shellfish, legumes or organ foods; psoriasis with high cell breakdown).

The first treatment of multiple myeloma, lymphoma or leukaemia can cause a massive release of uric acid ('tumour lysis syndrome') with sudden oliguric renal failure; this is preventable with allopurinol, and reversible with rasburicase (but very expensive).

Chronic lead exposure (paints, petrol) is a historical cause of repeated attacks of gout ("saturnine gout"), followed by progressive renal impairment and hypertension, often associated with disproportionate anaemia, shrunken kidneys, abdominal pain, impaired memory and neuropathy. Serum lead levels may be normal; the diagnosis requires chelation and three-day urine collections.



What gout treatment is safest in renal failure?

Unfortunately, most conventional treatments for gout are relatively contraindicated in the presence of kidney impairment.

NSAIDs can cause an acute rise in creatinine, BP and fluid retention. The *"triple whammy"* refers to acute renal failure occurring with concurrent NSAID, ACEI/ARB and diuretic. COX-2 inhibitors have precisely the same risk of renal effects as cheaper non-specific NSAIDs. Use the lowest dose for the shortest time with vigorous hydration, weigh daily, and convert to paracetamol as soon as possible.

Colchicine can induce *diarrhoea*, precipitating acute-on-chronic renal impairment. It is renally-excreted; chronic "low-dose" therapy with as little as 2-4 tablets daily for a month can cause a fatal *neuromyopathy* with *pancytopaenia*. The same dose minimisation approach for NSAIDs applies here as well.

Allopurinol is a well-recognised precipitant of *acute gouty flares*, and should only be introduced at low-dose when an acute attack has completely settled. One of its metabolites acts as a marrow suppressant; *reduced doses* of 100-200 mg/day may be more than sufficient to achieve the target uric acid level of <0.40. In renal transplant patients, avoid *concurrent azathioprine* (metabolised to 6-mercaptopurine) which can rapidly achieve severe marrow toxicity, unless the azathioprine dose is reduced by 70%, or converted to mycophenolate.

Asymptomatic elevated uric acid levels should not be treated. Reserve allopurinol for frequently recurrent gout, tophi or renal urate calculi, as there is small but defined risk of severe *hepatitis*, *vasculitis* and *rash*.

Prednisolone at a dose of 15-30mg orally for 2-3 days is sometimes the least toxic alternative for a patient with finely-balanced kidney function (GFR <20 mls/min), especially with polyarticular gout and/or a past history of adverse reactions to conventional agents. Intra-articular steroid is useful for single large joint attacks.

Take-home messages

- Don't treat asymptomatic hyperuricaemia.
- All NSAID's (including COX-2 inhibitors), colchicine and allopurinol are risky – use the lowest dose for the shortest time possible.
- Avoid first-dose tumour lysis syndrome in myeloma and lymphoma patients with allopurinol and bicarbonate pre-treatment.
- In acute gout in severe kidney impairment, short-term prednisolone may be a safer option.

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Avapro (irbesartan)

Footnote. Kidney Health Australia (formerly the Australian Kidney Foundation) has initiated a nation-wide education project, Kidney Check Australia Taskforce (KCAT), to reduce end-stage renal disease through earlier detection and management of mild chronic renal failure. The key elements are investigation of high risk groups, initiation of appropriate therapy and timely referral. The opinions expressed in the above article are those of the author and not necessarily endorsed by KCAT.