Ten Top Tips in Gout

This document highlights the recommendations relevant to GPs from the British Society for Rheumatology Guideline for the Management of Gout, published in 2017. It has been developed to raise awareness and support implementation of the BSR guideline in primary care. This resource is not RCGP guidance; it is an implementation tool and should be used alongside the published BSR guidance.

GPs are expected to take BSR recommendations fully into account when exercising their clinical judgement. However, in no circumstances does guidance override their responsibility to make decisions appropriate to the circumstances of each individual, in consultation with the individual and/or their guardian or carer. Clinical guidelines are based on the best available evidence and are there to help healthcare professionals in their work, but they do not replace their knowledge and skills.

Gout at a glance

- Gout is the most common inflammatory arthritis, and is caused by deposition of urate crystals in joints and soft tissues.
- Gout is associated with increased morbidity and mortality, and is an independent risk factor for increased risk of cardiovascular disease.
- All patients with gout should be offered urate lowering therapy after their first attack.
- Urate lowering therapy should be continued during an acute gout flare.

1. What is gout?

Gout is the most common inflammatory arthritis in the UK with a prevalence in primary care of around 2.5%; gout prevalence is increasing in line with many chronic diseases (Kuo, Grainge, Mallen, Zhang, and Doherty, 2015). Gout is caused by the deposition of monosodium urate crystals within body tissues, typically within joints, though this can also occur in the skin and soft tissues (causing gouty tophi) and renal tract.

What causes gout?
In most patients with gout (90%), reduced renal clearance of uric acid (a by-product of purine synthesis) causes a rise in serum urate. At serum concentrations approximately greater than 400 micromol/L extra-cellular fluid becomes saturated and monosodium urate crystals begin to form; the formation of urate crystals drives the inflammatory response seen in gout.

What is Pseudogout? Is this similar to gout?
Pseudogout is the term historically used to describe arthritis caused by deposition of calcium pyrophosphate crystals within joints and soft tissues. The more modern term for this form of crystal arthritis is Calcium Pyrophosphate Deposition Disease, or CPPD. CPPD tends to be a disease of older adults and the causes are not well known. CPPD can be difficult to
differentiate from gout as presentation can be similar; however, diagnosis can be confirmed by the finding of calcium pyrophosphate crystals in joint fluid, or seeing characteristic calcium pyrophosphate deposition on X-ray (known as chondrocalcinosis).

The management of acute flares of CPPD is similar to gout; however, as it is not caused by urate crystals, urate lowering therapy (ULT) is not effective at preventing flares.

2. Why is gout important? Does it harm patients?

Gout can be associated with significant morbidity, both within and outside of the musculoskeletal system. Gout is an independent risk factor for increased mortality, due to increased rates of ischaemic heart disease and chronic kidney disease. (Kuo et al., 2015), (Chen, Yen, and Chang, 2014)

Acute gouty attacks are extremely painful; patients with acute gout report high pain scores. Without effective preventative treatment, gout can go on to cause both bony damage and erosion, and a chronic inflammatory arthritis. Chronically raised serum urate (or hyperuricaema) can cause urate nephrolithiasis, and chronic kidney disease. There is good evidence that ULT reduces progression of CKD in hyperuricaemic patients, and can result in improvements in GFR (Refs 104, 105, 93 and 106 BSR guidance).

3. Who is at risk of gout?

Gout can affect anyone, though there are certain lifestyle factors, diseases and medications which make the development of gout more likely.

Hyperuricaemia is a necessary predisposing factor for gout, though the majority of patients with hyperuricaemia will not develop the condition (Campion, Glynn, and DeLabry, 1987). Serum urate levels are influenced by rates of dietary urate consumption, body metabolism and urinary excretion. Diets high in red meat or seafood, any form of increased alcohol consumption, and consumption of sucrose or fructose sweetened soft drinks, are established risk factors for gout. Drugs which reduce urinary uric acid clearance increase the risk of gout, in particular thiazide and loop diuretics; ciclosporin and low dose aspirin also reduce renal clearance of uric acid. Obesity also increases the risk of gout (Hui et al., 2017).

Several chronic diseases make development of gout more likely; dyslipidaemia, diabetes mellitus, chronic kidney disease, hypertension, ischaemic heart disease, psoriasis, COPD, depression and osteoarthritis are all increase the risk of developing gout (Kuo et al., 2015).

4. How does gout present. How do I diagnose it?

Acute gout

Gout attacks are caused by the presence of monosodium urate crystals within joints, classically the first metatarsophalangeal joint (MTP). Crystal deposition within the joint capsule can trigger a marked inflammatory response, driving the classical presentation of rapid onset of significant pain, erythema and swelling within affected joints. Dehydration, trauma, surgery, alcohol consumption, and starting ULT can all trigger a gouty flare.

The gold standard for diagnosis of gout is the identification of monosodium urate crystals in synovial fluid; in primary care, this may not be feasible due to lack of time, training, or access
to polarising light microscopy (Hui et al., 2017). In the absence of a tissue diagnosis, gout can be diagnosed clinical based on a combination of characteristic clinical features.

The hallmark of gout is the onset of severe pain, swelling and erythema within a joint, classically in the lower limbs. Maximal severity is reached usually within 24 hours, with resolution over several days, or occasionally weeks. Most acute gouty flares are monoartritic, though 20% of flares will affect more than one joint (Hadler, Franck, Bress, and Robinson, 1974). Inflammatory markers are frequently raised during a flare of gout.

Uric acid levels can be difficult to interpret during an acute flare; serum urate levels tend to fall during flares. The most accurate time to assess hyperuricaemia is at least two weeks after an acute flare. A serum urate level of less than 400 micromol/L should prompt consideration of an alternative diagnosis. Patients with severe symptoms or diagnostic uncertainty should be discussed with a rheumatologist.

Recurrent gout

After an initial flare, most patients will experience a further flare within 2 years (Sriranganathan et al., 2014). Recurrent flares of gout follow a similar clinical pattern, and more likely to become more frequent and involve different joints (Hadler et al., 1974). Even during asymptomatic periods, deposition of urate crystals can occur within skin and joints causing joint damage and erosion, and potentially a persistent gouty arthritis.

Deposition of urate crystals within the skin and soft tissues can be visible or palpable; this is known as tophus. Tophus classically occurs on or around joint structures such as tendons, bursae, or the joint capsule.

5. How should I treat an acute flare?

Attacks should be treated as soon as symptoms occur. Affected joints should be rested, elevated and exposed in a cool environment. Ice packs can help reduce symptoms.

Pharmacological treatment is important in reducing duration and severity of symptoms. NSAIDs at maximal dose or colchicine at doses of 500 µg bd-qds should be considered; evidence that either is superior is lacking, so choice should be determined by individual patient preference or the presence of comorbidities such as chronic kidney or ischaemic heart disease.

Joint aspiration and corticosteroid injection are highly effective in rapid control of symptoms; this may be the treatment of choice in patients with acute illness and comorbidity. A short course of oral or intramuscular steroid may be considered in patients who are unable to tolerate colchicine and NSAID, or who have severe oligo- or polyarticular gout. Severe symptoms requiring steroid should usually prompt discussion with a rheumatologist.

6. When should I start preventative treatment?

The evidence supporting the use of ULT in gout has increased over recent years (Faruque et al., 2013; Sriranganathan et al., 2014), (Ye et al., 2013). Lowering serum urate with ULT reduces morbidity associated with acute attacks, reduces the risk of long-term joint damage, slows the of progression of CKD in gout patients, and can improve renal function (Wechalekar et al., 2014), (Siu, Leung, Tong, and Kwan, 2006), (Goicoechea et al., 2010)
The option of ULT should be offered to all patients who have a diagnosis of gout following an initial attack; ULT should be particularly advised in patients with: recurrent attacks (≥ 2 in 12 months), the presence of tophus, chronic gouty arthritis or joint damage, an eGFR < 60ml/min, a history of urolithiasis, diuretic therapy use, or primary gout starting at a young age.

Commencement of ULT therapy should be delayed until inflammation is settled as initiation of ULT can provoke gouty flares. In patients who have frequent attacks of gout, both colchicine and low-dose NSAID can be used as prophylaxis against acute attacks whilst titrating ULT.

**What ULT should I use?**
Both allopurinol and febuxostat have been proven to safely reduce serum urate levels and reduce the frequency of gout flares. In the UK allopurinol is recommended as first line ULT, with febuxostat used as second line treatment, “only when allopurinol is contraindicated or not tolerated” (National Institute for Health and Care Excellence, 2008). In Scotland the SMC accepts febuxostat as a suitable second-line ULT when treatment with allopurinol is “inadequate, not tolerated or contraindicated”(Consortium, 2014).

**Should I stop ULT during an attack?**
ULT should not be stopped during an attack of gout; it is important that ULT is continued to maintain reductions in serum urate levels.

**7. Should I measure urate on treatment? Is there a target I should aim for?**
We know that as a patient’s serum urate level falls, elimination of urate crystals from joints accelerates, and the risk of further flares of gout reduces. The initial aim of ULT is to reduce the serum urate level to below a target of 300 µmol/l. After a patient has stabilised and has remained symptom free, then a less stringent target of 360 µmol/l can be used to avoid further crystal deposition.

**8. Are there any drugs I should stop?**
Several classes of drugs act to reduce urinary clearance of uric acid, in particular thiazide and loop diuretics; ciclosporin and low dose aspirin. Drugs in this group can increase serum urate levels, reduce the efficiency of ULT, and increase the risk of gout flares.

Changes in established treatment to reduce the risk of gout flares needs to be balanced against the risk of harm. Thiazide and loop diuretics in particular increase serum urate levels significantly; recent guidelines suggest “[whilst] there was insufficient evidence to recommend the discontinuation of diuretics across all indications, if diuretic drugs are being used to treat hypertension rather than heart failure, an alternative antihypertensive agent can be considered as long as blood pressure is controlled.”

**9. What lifestyle advice should I give?**
There is growing evidence regarding the importance of lifestyle education in gout. Patients should be encouraged to make appropriate dietary changes; reducing intake of alcohol, sweetened fizzy drinks and purine rich foods. In overweight patients, dietary modification to
achieve and maintain gradual weight loss should be recommended. Patients with gout should be encouraged to avoid dehydration to reduce the risk of flares.

As gout is associated with multiple comorbidities, and is associated with an increase in all-cause mortality (Chen et al., 2014), (Kuo et al., 2015), modifiable cardiovascular risk factors and co-morbid conditions should be actively screened for; annual reviews and screening for tobacco use, hypertension, diabetes mellitus, dyslipidaemia, obesity and renal disease are good practice.

10. Is there any QI activity to improve my practice?

- What proportion of your gout patients have been provided with educational material about the condition, or dietary and lifestyle change?
- What proportion of your gout patients are prescribed urate lowering therapy? Have all your gout patients been offered ULT?
- How many of your patients taking ULT have had a subsequent check of urate? What percentage of patients achieve a target serum urate of <300 µmol/L?
- Have all your gout patients been screened for comorbidities/risk factors in the last 12 months?

References


National Institute for Health and Care Excellence. (2008). Febuxostat for the management of
hyperuricaemia in people with gout. NICE Guidance.


