## Gout

Gout is an inflammatory arthritis caused by the buildup of monosodium urate crystals in the joints due to hyperuricemia (elevated serum urate levels). It typically presents with acute episodes of severe joint pain, redness, and swelling, most commonly affecting the first metatarsophalangeal joint. Chronic gout can result in joint damage, tophi formation, and a reduced quality of life. My reasoning for selecting gout lies in its prevalence, impact on quality of life, and the existence of well-documented clinical practice guidelines (CPGs). Effective management of gout, including prophylactic anti-inflammatory therapy, can significantly reduce flares, enhance patient outcomes, and prevent long-term complications.

The CPG strongly recommends using anti-inflammatory prophylaxis therapy, such as colchicine, NSAIDs, or prednisone/prednisolone, during the initiation of urate-lowering therapy (ULT) and its continuation for 3–6 months. This recommendation is based on moderate-quality evidence from randomized controlled trials (RCTs) and observational studies demonstrating a significant reduction in flare rates during this period.

## Impact on Pediatric, Pregnant, and Older Adult Populations

Children may have faster drug metabolism in the pediatric population due to immature enzyme systems, affecting drug levels and efficacy. Gout is rare in children and is often associated with secondary causes, such as metabolic disorders. Colchicine dosing should be weight-based, and NSAIDs may be preferred over corticosteroids to avoid growth suppression. Monitoring for adverse effects, such as gastrointestinal symptoms or hepatotoxicity, is crucial.

Pregnancy alters drug metabolism, distribution, and elimination due to hormonal and physiological changes. Colchicine is classified as FDA category C and may be used cautiously if the benefits outweigh the risks. NSAIDs are generally avoided in the third trimester due to the risk of premature closure of the ductus arteriosus. Prednisone may be considered, but long-term use can increase maternal and fetal risks.

Age-related decline in renal and hepatic function affects drug clearance, increasing the risk of toxicity. To minimize adverse effects, lower doses of colchicine and NSAIDs are required. NSAIDs should be avoided in patients with cardiovascular, renal, or gastrointestinal conditions. Corticosteroids may be preferred in those with contraindications to other drugs.

## Application of Clinical Guidelines in Practice

The CPG recommendations provide a structured framework for initiating and managing gout therapy. In future practice, patient-specific factors such as comorbidities, renal function, and contraindications should be assessed when