Crystal-Induced Arthritides in the Elderly: An Update

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KEYWORDS

• Gout • Geriatrics • Treat to target • Comorbidities

KEY POINTS

- The presentation of gout in the elderly includes atypical features and offers more challenges in the differential diagnosis.
- The treatment of gout depends on the stage of the disease, as well as the functional status and comorbidities of the patient.
- Acute gout attacks are disabling and can lead to a substantial decrease in quality of life. Treatment is aimed at quickly resolving pain and inflammation.
- Curative therapy is to dissolve all of the urate deposits by using urate-lowering therapy; when that is accomplished, attacks will no longer occur.

INTRODUCTION

Microcrystalline disease, predominantly monosodium urate (MSU) deposition (gout) is the most common cause of inflammatory arthritis. The prevalence of clinical gout increases with age in both men and women[1] to approximately 8% in men older than the age of 75 years.[2] This increase occurs for several reasons (see later discussion). Gouty arthritis is preceded by hyperuricemia with clinically silent deposition of MSU in and around intraarticular structures, as well as in tendons, bursae, and soft tissues. Deposition of MSU occurs when the serum urate concentration (SUA) exceeds its solubility, which is approximately 6.8 mg/dL. The deposition occurs over years, so it is not surprising that older individuals with hyperuricemia (defined as a SUA >6.8 mg/dL) and, therefore, who have had more time for deposition to occur are at increased risk to develop gouty arthritis, as well as palpable tophaceous deposits (Fig. 1). SUA levels

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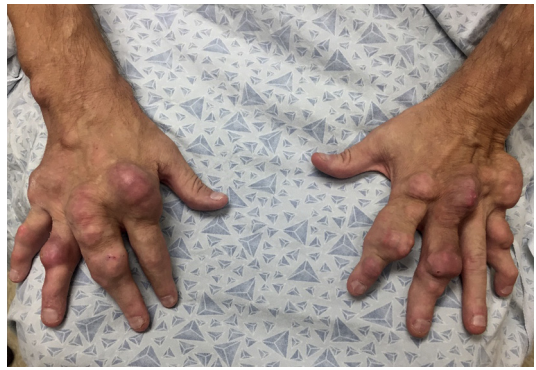

Fig. 1. Large tophaceous deposits affecting multiple fingers.

are higher in humans than in other species due to the genetic absence of uricase. The heterogeneity in SUA levels across populations is due primarily to the variability in genetically determined transport efficiency of excretion of urate by renal (~2/3) and gastrointestinal GI (~1/3) transporters.

Additional contributors to SUA elevations, many of which accompany aging, include obesity, medications (including most diuretics, **Table 1**), decreased glomerular filtration rate, and ingestion of beer (including nonalcoholic) and mineral spirits. Women's SUA levels increase after menopause because estrogen has a uricosuric effect.[3] Although hyperuricemia and gout are strongly associated with insulin resistance, obstructive sleep apnea, hypertension, and the metabolic syndrome, it seems that the independent factor required for gout to develop is sustained hyperuricemia.[4]

Because deposited MSU remains in equilibrium with the SUA, the core principle in treating patients with gout is that maintenance of the SUA significantly below its saturation threshold will ultimately result in the dissolution of the MSU deposits and prevent the occurrence of acute attacks. The lower the level that the SUA is maintained, the more rapid the dissolution of the deposits and the sooner gout attacks will cease. With therapy, the dissolution usually takes months to years to occur and this needs to be considered when making therapeutic decisions in the very elderly. The inverse relationship between rate of resolution and SUA level is the basis of why the ultimate target for SUA in those patients with palpable tophi is lower (<5.0 mg/dL) than those without tophi (<6.0 mg/dL). These tophi presumably reflect a higher total urate burden, which in turn will take longer to dissolve. Whatever the final SUA target, orally dosed urate-lowering therapy (ULT) should generally be initiated at a low dose and slowly escalated to the dose necessary to achieve and maintain the desired SUA. Slow escalation should be prescribed to decrease the chance of a mobilization attack of gout from

Table 1
Drug-induced hyperuricemia

Mechanism	Drugs
Increased uric acid production	Cytotoxic chemotherapy, filgrastim, ribavirin or interferon
Reduced renal clearance of uric acid	Angiotensin-converting enzyme inhibitors, cyclosporine, thiazide and loop diuretics, ethambutol, tacrolimus, low-dose aspirin (mild)
Increased urate production and decreased clearance	Niacin