

Inflammatory Arthritis in the Elderly

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Abstract

The three most common inflammatory arthritic conditions affecting the elderly are reviewed, along with current information about the various treatments.

Key Words: Elderly, arthritis, rheumatoid arthritis, gout.

Introduction

ARTHRITIC COMPLAINTS in the elderly are most frequently associated with degenerative, non-inflammatory osteoarthritis. Not uncommonly, however, forms of inflammatory arthritis, such as rheumatoid arthritis (RA), gout, or pseudogout, may be present. The ability to identify inflammatory arthritis is crucial, because these entities, unlike osteoarthritis, are highly responsive to pharmacologic intervention. With such intervention, the disabling symptoms associated with inflammatory arthritis can be markedly suppressed or eliminated, with improvement in the functional status and overall well-being of the elderly patient.

Rheumatoid Arthritis

Rheumatoid arthritis (RA) is the most prevalent inflammatory arthritis of any age group, occurring in 1–2% of the world's population, according to estimates by the Arthritis Foundation (1). The etiology and pathogenesis of RA are unknown. It is defined by clinical criteria, including significant generalized morning

stiffness lasting for more than one hour; an objective symmetrical polyarthritis affecting three or more joints; a tendency for proximal hand joint involvement, e.g., in the wrist, metacarpophalangeal joints (MCPs), and proximal interphalangeal joints (PIPs); and the persistence of all symptoms for at least 6 weeks, in the absence of another defined connective tissue disease such as lupus, scleroderma, myositis, or vasculitis (2). Rheumatoid factor, rheumatoid nodules, and erosive changes on x-ray are not required for the diagnosis.

Rheumatoid arthritis is also quite common in the elderly, in whom two clinical presentations are encountered. The first, referred to as "RA in the elderly," is the *de novo* development of rheumatoid arthritis in persons older than age 65. Clinically, it is characterized by disabling morning stiffness and marked pain predominantly affecting the upper extremities. The physical examination is remarkable for pronounced synovitis of the shoulders and the wrists as well as the MCPs and PIPs, with marked limitation of motion and severe soft tissue swelling. These conditions result in striking functional impairment of the hands. Laboratory evaluation is remarkable only for an elevated sedimentation rate, and rheumatoid factor is frequently absent. X-rays reveal periarticular osteopenia and soft tissue swelling. Joint space narrowing and erosive changes are uncommon at initial presentation (3).

The second presentation of rheumatoid arthritis encountered in elderly patients affects

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those in whom the RA has developed before the age of 65. Most of these patients have had several decades of disease activity by the time they present to geriatricians. As a result, they commonly have an advanced stage of the disease, with multiple deformities in addition to prolonged morning stiffness. Often, they have already been treated with multiple agents which have failed to provide a remission or relief of symptoms. Not uncommonly, they have already undergone selective joint replacement surgery. The physical examination of these patients reveals varying degrees of active polyarticular synovitis in both the upper and lower extremities. Ulnar deviation, elbow contractures, wrist subluxation, swan-neck and Boutonniere deformities are also common. Systemic manifestations such as rheumatoid lung, vasculitic ulcers, peripheral neuropathy, and secondary amyloid, all reflecting longstanding inflammatory disease, may complicate the care of this subpopulation of RA patients.

In addition to an elevated sedimentation rate, many of these patients have elevated serum rheumatoid factor. X-rays reveal marked erosive, destructive joint disease in addition to prominent osteopenia and soft tissue swelling.

Therapeutic Approach to RA in the Elderly

For both groups of patients, those with *de novo* onset as well as those with longstanding disease, the primary therapeutic objectives are the relief of joint pain and improvement in functional status. These goals take on more urgency for the elderly, because the potential for immobility places them at high risk for permanent loss of their independence. Once these patients become bed- or chair-bound, medical complications such as decubitus ulcers and deep venous thrombosis make recovery improbable. For this reason, palliation with corticosteroids should begin immediately. Since the dosages required for suppression of rheumatoid synovitis in the geriatric patient are low, in the range of 2.5–7.5 mg per day, the long-term toxicity is minimal, as compared with younger rheumatoids. This contrasts with the use of nonsteroidal anti-inflammatory drugs (NSAIDs) in the elderly rheumatoid, for whom suppression of inflammation is achieved only with high dosages of these drugs. The toxicity associated with the chronic use of these high dosages in the elderly is considerable, and results in gastrointestinal (GI) bleeding, GI perforation, renal failure, volume

overload, and central nervous system (CNS) effects (5). The cyclo-oxygenase-2 (COX-2) inhibitors, although safer from the standpoint of adverse GI problems, cause impaired renal function, hypertension, altered fluid/electrolyte status, and CNS toxicity. Thus, high-dose chronic usage of NSAIDs for symptomatic control in the elderly rheumatoid is problematic, with the risk/benefit ratio for low-dose steroids markedly more attractive. For those elderly rheumatoids whose synovitis remains symptomatic despite several months of low-dose steroids, or who have either erosive, destructive arthritis or systemic extra-articular disease, treatment with remittive agents or disease-modifying antirheumatic drugs (DMARDs) is indicated (6).

The use of remittive agents in the elderly rheumatoid is the same as that in young rheumatoid patients and includes the use of broad-spectrum immunosuppressive drugs as well as newly developed biologic agents such as tumor necrosis factor (TNF) inhibitors and interleukin-1 receptor antagonists (see Table 1). Although preliminary data are promising, the long-term safety and efficacy of these new biologic agents has yet to be determined (7–9). In addition, the need for parenteral administration of these agents, coupled with the high frequency of contraindications found in this population, such as old TB, treated malignancy, or a chronic site of infection, limits their use in elderly rheumatoids.

For those elderly patients in whom drug therapy for rheumatoid arthritis is indicated, but who have significant underlying medical problems such as renal insufficiency, hepatic impairment, or myelodysplasia, or who cannot

TABLE 1
Remittive Therapy in Rheumatoid Arthritis

Immunosuppressive Agents	
	aurothioglucose
	gold sodium thiomalate
	auranofin
	methotrexate
	hydroxychloroquine
	sulphasalazine
	cyclosporine
	azathioprine
	leflunomide
	mycophenolate mofetil
	cyclophosphamide
Biologic Agents	
	etanercept*
	infliximab*
	anakinra*

* long-term data to establish efficacy not yet available

make frequent follow-up visits, hydroxychloroquine and low-dose sulphasalazine are less-toxic alternatives. These latter two drugs require less frequent monitoring for adverse effects (10). Physical therapy, supportive devices, and judicious joint replacement surgery are also of great benefit to elderly rheumatoids.

Gout

Gout is the second most commonly encountered inflammatory arthritis in the geriatric patient. It is caused by an intense inflammatory reaction to the shedding of monosodium urate crystals into synovial fluid (11). Alcohol use, renal insufficiency, diuretic use, dehydration, and acute medical illness are predisposing factors commonly seen in the elderly. The initial attack is usually monarticular, with the first metatarsophalangeal joint (MTP) as the most common site of inflammation. Subsequent attacks can be either monarticular or polyarticular, with intense pain, swelling, and erythema localized to the first MTPs, the dorsum of the foot, instep, ankle, knees, wrists, olecranon bursae, and distal digits. Gouty arthritis affecting the shoulder and spine is less commonly seen. Most acute attacks resolve spontaneously over 1–2 weeks if untreated. The severity of symptoms in those patients who experience a polyarticular attack makes gout disabling, particularly when they are unable to wear shoes, walk, or close their hands. For this reason, prompt diagnosis is important, especially since rapid and complete resolution of symptoms within a few days is probable with the appropriate treatment.

Gout is diagnosed by arthrocentesis, with the demonstration of intracellular uric acid crystals by polarized microscopy. The visualization of intracellular crystals rules out the possibility of a missed septic arthritis.

Treatment of Acute Gout

Once diagnosed, there are several therapeutic options available for the treatment of acute gout (12). These therapeutic options are listed in Table 2. If renal, cardiac, and hepatic function are normal, a brief course over 2–7 days of a high-dose NSAID such as indomethacin will rapidly and completely resolve the attack. Unfortunately, most patients encountered in the geriatric practice have underlying renal, cardiac, or hepatic dysfunction such that high-dose NSAID therapy is not the safest option. If the patient presents within 48 hours of the onset of

TABLE 2
Therapy of Acute Gout or Pseudogout

NSAIDs
Oral colchicine loading
Intra-articular steroid injections
Systemic steroids

symptoms of acute gout and renal function is normal, oral colchicine loading of 0.6 mg given hourly to a maximum of 6 doses can also rapidly provide relief. This treatment should be discontinued abruptly if diarrhea or GI upset develops. For the older patient with multi-organ dysfunction and a monarticular gouty attack, the safest therapeutic option is an intra-articular injection of a long-acting steroid such as depomethylprednisolone. If the attack is polyarticular, however, local injections are not feasible, and the only safe option for these patients is the use of systemic steroids such as prednisone or its equivalent at an initial dose of 30 mg daily, with a slow taper over 1–2 weeks until the synovitis resolves (13). The use of ACTH for acute polyarticular gout, as pioneered at Mount Sinai Medical Center by Dr. Tsai-Fan Yu, was particularly safe and effective for patients with multiple medical problems, but it is no longer readily available (14, 15). Uric-acid-lowering agents such as probenecid and allopurinol are contraindicated during an acute gouty attack and should not be initiated.

For patients who are at high risk for recurrent gouty attacks, such as those with renal insufficiency or with congestive heart failure on diuretic therapy, prophylactic colchicine 0.6 mg daily should be started during the acute episode and continued in the long term, provided that GI toxicity does not develop. This daily use of low-dose colchicine is ineffective for controlling acute gout, but will markedly reduce the frequency and severity of subsequent gout attacks (16).

Pseudogout

Acute pseudogout is the third most common inflammatory arthritis affecting the elderly. It is caused by an inflammatory reaction generated by the shedding of calcium pyrophosphate crystals into synovial fluid (17). The clinical features that predispose patients to the development of pseudogout are advanced age, acute underlying medical illness, trauma or surgery, hypothyroidism, diabetes, gout, and osteoarthritis.

Attacks of pseudogout can be either monoarticular or oligoarticular. The most commonly affected joints are the knees, followed by the shoulders, wrists, and ankles (18). Distal small joint involvement is unusual. The diagnosis of acute pseudogout is established by arthrocentesis, in which examination of the synovial fluid reveals the presence of intracellular calcium pyrophosphate crystals. Chondrocalcinosis, which is a stippled calcification in the cartilages of the knee or the wrist, may be seen in some patients with acute pseudogout, but is not diagnostic and cannot substitute for arthrocentesis (19). The management of acute pseudogout is identical to that of acute gout: NSAIDs, oral colchicine loading, intra-articular steroid injections, and systemic steroids. Prompt treatment of the elderly patient promotes resolution of the inflammatory synovitis and restoration of function.

In summary, while osteoarthritis may be the most frequent cause of joint pain in the elderly, inflammatory arthritis, in the form of RA, acute gout, or pseudogout, is also commonly encountered. These inflammatory diseases are highly responsive to medical therapy. Thus, their recognition and proper management are important, because treatment greatly improves the functional and status quality of life for these patients.

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