Acute gouty arthritis is initiated by the deposition of sodium urate crystals into a joint and its synovial membrane. White blood cells (specifically, polymorphonuclear cells) enter the joint, engulf the urate crystals, and release a number of substances that trigger inflammation and an acute attack of arthritis. Urate crystals can also accumulate in many other sites, such as the kidneys, tendons, bones, and directly beneath the skin. Accumulations of urate create characteristic lesions called tophi—uric acid crystals surrounded by cells that amass to defend against the deposited foreign body. Chronic gouty arthritis results when a joint is damaged by the formation of tophi within and around the joint. If gout is chronic, osteoarthritis often develops in the joint.

A high blood level of uric acid (hyperuricemia) is a consistent finding in people with gout, but many people with persistent hyperuricemia never develop gout. In addition, it appears that a rapid drop—as well as a rapid rise—in blood uric acid levels can precipitate an attack of acute gout.

Uric acid kidney stones often result from the excessive excretion of uric acid in the urine, and deposition of urates in the kidneys can eventually lead to kidney damage and failure.

Pseudogout

Pseudogout is caused by acute inflammation due to the accumulation of crystals of calcium pyrophosphate (rather than uric acid) within a joint. (Blood uric acid levels are usually normal in individuals with pseudogout.) The disorder is often first suspected from x-rays that show calcification of the cartilage (chondrocalcinosis). Diagnosis is confirmed when microscopic examination of fluid taken from the affected joint reveals the typical calcium pyrophosphate crystals.

The disorder can lead to recurrent attacks of acute arthritis, generally involving large joints such as the knee and wrist. It occurs most often in people over age 60, and symptoms are limited to the joints. Pseudogout is frequently associated with an underlying metabolic abnormality, such as diabetes, an underactive thyroid, an overactive parathyroid, excessive tissue deposits of iron (hemochromatosis) or copper (Wilson's disease), and true gout.

No known medication can prevent pseudogout by stopping the formation of joint crystals. Treatment is limited to easing the pain with aspirin or other NSAIDs. When swelling and pain persist, removal of fluid from the joint and steroid injection may provide relief.

NEW RESEARCH

Experimental Drug Reduces Disease Activity in RA

An experimental drug called MRA that blocks the activity of the protein interleukin-6 may reduce disease activity in people with rheumatoid arthritis (RA), a Japanese study reveals. Interleukin-6 is believed to play a role in RA.

A total of 162 people with RA that had not responded to standard medications were randomized to receive either high-dose MRA, low-dose MRA, or a placebo. Medication was administered intravenously once a month for three cycles.

At the end of three months, the percentage of people whose RA improved by at least 20% was 78% in the high-dose MRA group, 57% in the low-dose MRA group, and 11% in the placebo group. When researchers looked at the percentage of people whose RA improved by at least 50%, the difference between high-dose MRA and placebo was even greater: 40% vs. less than 2%.

Most side effects with MRA were mild, but 3 of the 109 people taking MRA experienced serious side effects. In addition, total blood cholesterol rose in 44% of the people taking MRA.

Further studies are needed to evaluate the long-term safety profile of MRA, including the possibility of cardiovascular complications related to the rise in cholesterol levels.

ARTHRITIS & RHEUMATISM
Volume 50, page 1761
June 2004