

Gout

Gout is considered a form of crystal deposition arthritis, hence the name, **gouty arthritis**. **Uric acid**, a chemical that is found in the serum component of our blood, is the key to **understanding gout**. Excessively high levels of **uric acid** lead to the deposition of monosodium urate deposits into joints and also certain subcutaneous spaces in the body. To understand the way that acute gouty attacks occur, let's use a simple example;

Example - As children, we would make our own rock candy. We'd get a pot of water and begin to heat it on the stove. As the water warmed, we'd add sugar. The hotter the water became, the more sugar we could break down. When the water was close to a boil and saturated with sugar, we'd remove it from the heat and allow the sugar to crystallize on a string as the water cooled.



Acute Gouty Attacks Occur in Much the Same Manner

Most acute gouty attacks occur in the late hours of the night. As we sleep, our bodies tend to focus on the primary metabolic functions for example digestion, breathing, etc. The extremities, such as the feet tend to cool as a result of this kind of 'lack of attention'. As they cool, and if the dissolved amount of uric acid is high adequate, the result is an acute gouty assault. Soreness results from the crystals that form within a joint. Range of motion of the joint results in severe pain and inflammation.

Uric Acid is Measured in the Serum (Liquid) Component of Our Blood

Normal levels for men are less than 7mg/dl of serum and a bit less for nearly all women. This level has a tendency to rise in women following menopause. The vast majority of **gout patients** are men.

- High levels of uric acid result from high levels of ingestion or low levels of removal of **purines**.
- The inability to metabolize purines may be inherited or acquired.
- Purines are protein components in meals which are only commonly within these foods;

Heavy red meats such as sausage liver, kidney, tongue, cardiovascular and additional foods including peanuts, alcoholic beverages, Dairy products including milk, ice cream and cottage cheese.

- Individuals who have had acute gouty attacks should restrict their intake of these foods.
- This does not mean that they need to completely eliminate all of them from their diets, but rather consume them with small amounts.
- The serum level of uric acid is also significantly influenced by the ability of the kidney to be able to excrete uric acid.
- Factors that influence normal renal function may lead to limited removal of uric acid.
- These factors include the use of thiazide diuretic therapy and renal failure.
- Other factors that may contribute to the onset of gout are the stress of surgery, emotional stress, fatigue, infection or the use of penicillin.

Treatment of Gout and Gouty Arthritis

The most significant thing to consider in treatment is the frequency of attacks. Frequent assaults (more than one a year) will result in progressive erosion of the joint, leading to painful persistent arthritis. Isolated attacks (less than one a year) lead to minimum destruction of the joint. The frequency of gouty attacks determines whether treatment is merely for each attack, or whether daily medicine should be taken to lower levels of serum uric acid.

- Treatment of acute attacks includes the use of non-steroidal anti-inflammatory medications such as Indocin or Clinoril.
- Control of pain may require a mild narcotic such as codeine.
- Other treatment may include Colchicine which yields extraordinary results but carries severe side effects which include nausea and severe diarrhea.
- Colchicine is dosed once every two hours until the desired (or undesired) effects are usually achieved.

Treatment of repeated attacks includes the modifications in diet as previously discussed and the use of Allopurinol, an inhibitor of uric acid synthesis. Probenecid and sulfapyrazone are also used to increase the result of uric acid by the kidney. Dosing and combination therapy depends upon the level of serum uric acid which is assessed periodically during therapy. Individuals prone to gouty attacks should also maintain a high fluid intake to promote the excretion of uric acid and decrease the tendency to form uric acid stones in the kidney and bladder.

Symptoms:

The symptoms of gout usually appear during the night and are available on like a freight train. The weight of the bed sheets is often intolerable. One joint or several may be involved. The most common site is the very first metatarsal phalangeal joint (big toe joint). This is described as crushing and excruciating. Attacks tend to last several days.

Gouty Arthritis can be Visualized on X-Rays After Several Attacks

The bone adjacent to the joint becomes eroded with a characteristic punched out lesion referred to as a Martel's Sign or 'rat bite sign'. The erosion is very distinctive and represents a pocket of **gouty tophi**. Tophi would be the accumulation of monosodium uric acid crystals. Tophi are often found in joints but are often found at extensor surface (back) of the elbow, the rim of the ear and at the back of the heel. When viewed surgically, tophi appear to have the same consistency of cottage cheese.

Differential Diagnosis:

The differential diagnosis for this condition should include;-

Fracture Osteoarthritis

Infection of the shared rheumatic fever.

Chondrocalcinosis

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