



GOUT DISEASE

SECOND STAGE

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MEDICAL BIOCHEMISTRY

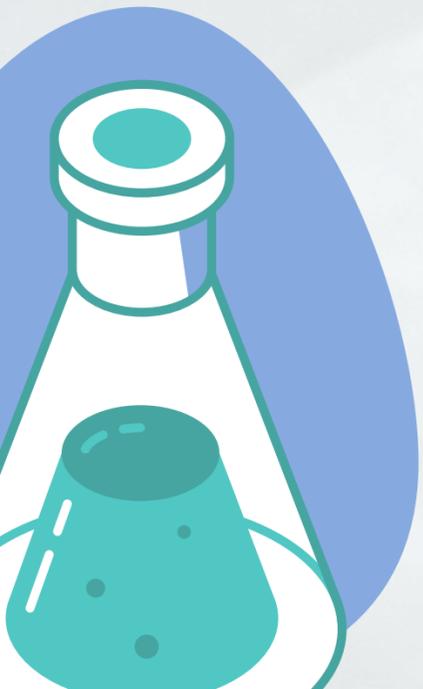


Gout overview :

gout is a form of inflammatory arthritis caused by the accumulation of uric acid crystals in the joints.

it is often associated with hyperuricemia, a condition where there is too much uric acid in the blood.

the disease is characterized by sudden, severe attacks of pain, swelling, redness, and tenderness in one or more joints.

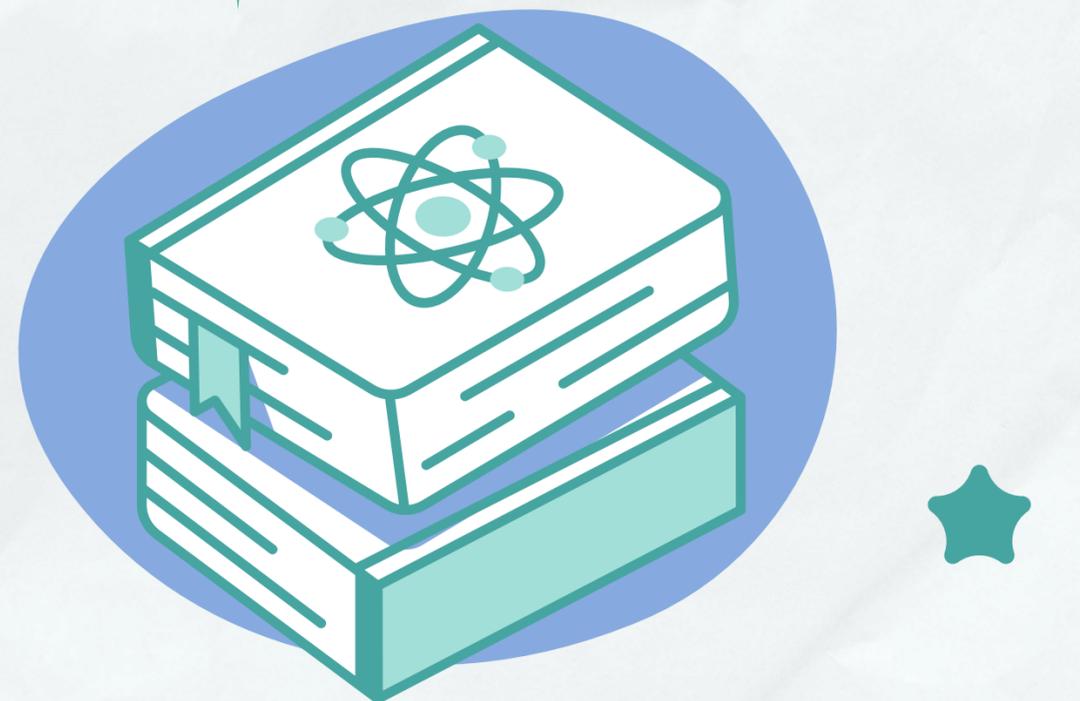


The Science of Uric Acid :

uric acid is a waste product formed from the breakdown of purines, which are natural substances found in the body and certain foods.

normally, uric acid dissolves in the blood, passes through the kidneys, and leaves the body in urine.

if the body produces too much uric acid or the kidneys excrete too little, it can build up and form sharp, needle-like urate crystals in a joint or surrounding tissue.





Dietary and Lifestyle Risk Factors:



Purine-Rich Foods: increased consumption of shellfish, anchovies, red meat, or organ meat.



Beverages: High-fructose corn syrup and alcoholic beverages contribute to uric acid formation or decreased clearance.



Dehydration: not drinking enough water can allow uric acid to precipitate out.



Related Conditions: Obesity and diabetes are significant risk factors.

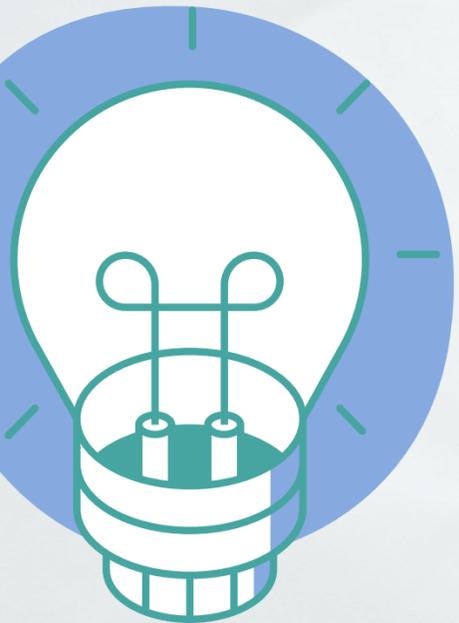




Medical and Genetic Causes :



genetics play a role in how the body handles uric acid; some people are genetically predisposed to produce more or excrete less.



certain medications, such as diuretics (water pills) and low-dose aspirin, can increase uric acid levels.

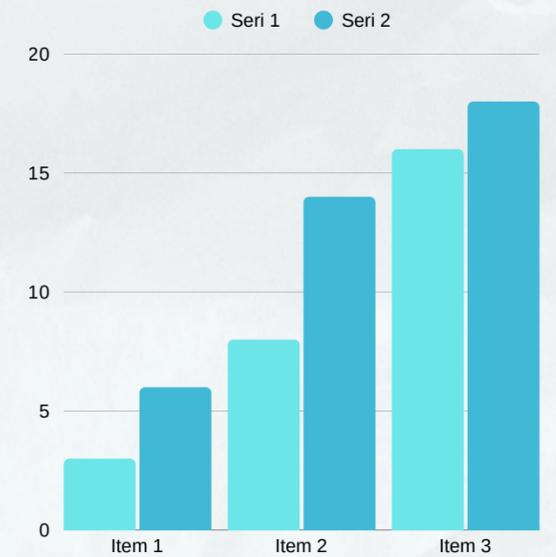
Symptoms and Podagra:

Podagra: Gout most commonly affects the first metatarsal joint (the base of the big toe).

The Experience: patients often wake up feeling like their toe is "on fire"; even the weight of bed sheets can be painful.

Duration: while the most severe pain occurs immediately, discomfort and swelling can last for days or weeks.

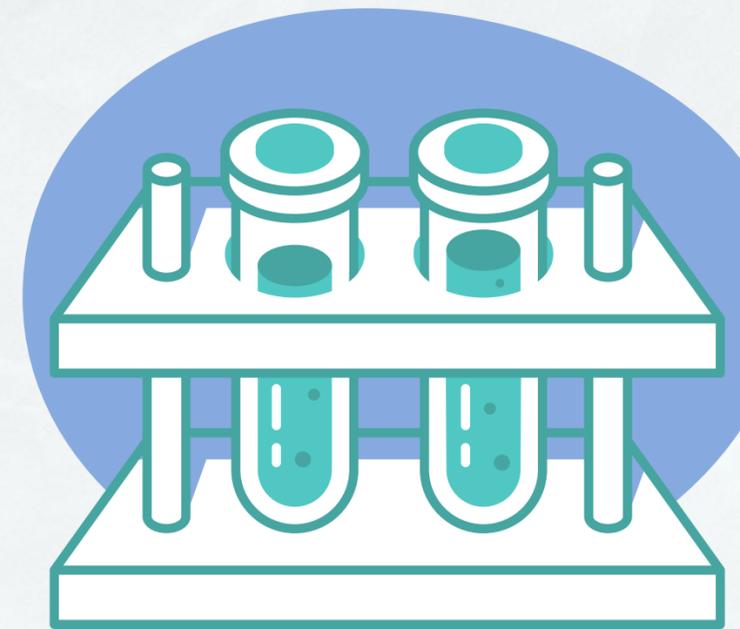
Other Joints: Gout can also affect ankles, knees, wrists, and elbows.



Pathophysiology (The Inflammatory Response):

The Role of White Blood Cells: inflammation is caused by leukocytes migrating to the joint to eliminate uric acid.

NYC Chemical Release: these cells release proinflammatory chemicals, including cytokines, which cause local pain and swelling.

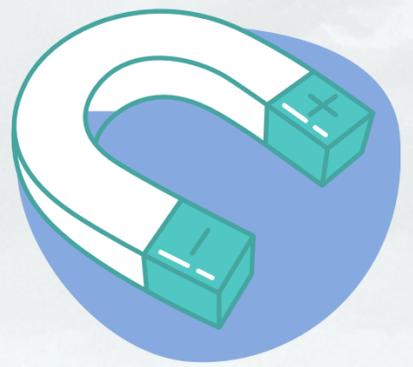


Treatment of Acute Attacks:

NSAIDs: nonsteroidal anti-inflammatory drugs to reduce pain and inflammation.

Colchicine: a medication that specifically targets gout inflammation.

Corticosteroids: used for patients who cannot take NSAIDs or Colchicine.



Long-Term Management and Prevention :

Dietary Modifications: staying hydrated with water and eliminating soda, alcohol, red meat, and seafood.

Weight Management: staying active to prevent obesity.

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Uric Acid-Lowering Medications:

Xanthine Oxidase Inhibitors (e.g., Allopurinol): block the enzyme that breaks down purines into uric acid.

Uricosuric Medications (e.g., Probenecid): increase the excretion of uric acid by the kidneys.





Complications of Chronic Gout :

Tophi: permanent deposits of uric acid crystals that form lumps under the skin.

Joint Damage: chronic inflammation can lead to permanent joint deformity and loss of mobility.

Kidney Stones: high levels of uric acid can lead to the formation of stones in the urinary tract.



**Thank You
for your
attention !**

