

GOUT [HYPERURICEMIA]

Inflammatory disease in which mono sodium urate crystal deposit into a joint making it red , hot, tender, swollen within hours called **GOUTY ATTACK**

[DEPTH OF BIOLOGY]



CAUSE- hyperuricemia {too much URIC ACID in blood}

Results in the formation of sharp needle like crystal in areas with slow blood flow like the joints & kidney tubules [DEPTH OF BIOLOGY]

Repeated gouty attack can cause destruction of the joint tissue

Lead to

ARTHRITIS [DEPTH OF BIOLOGY]

Gout (Inflammatory Arthritis)

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- Purines + pyrimidines are the key component of nucleic acid like DNA, RNA

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- Cell containing purine- when breakdown; *purine is converted in uric acid that can be filtered out of blood & excreted in urine.*

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- Uric acid has limited solubility in body fluids

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- At a pH of 7.4 uric acid loses a proton & becomes urate ion
- Then bind with Na & form mono sodium urate crystals

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i. This crystal can form as a result of increase in consumption of amines

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ii. Increase in production of purine

iii. Decrease in clearance of uric acid



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Results from dehydration
[not drinking enough water]
or alcohol consumption

iv. By chemotherapy or radiation treatment since cell dies faster than normal rate

v. Genetic pre-deposition

vi. Chronic kidney disease

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vii. Some medication like aspirin

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NOW,

- GOUT mostly affects the the **1st metatarsal joint** of the foot of big toe
- This condition is called **PODAGRA**
- Also affects other joints as well
Elbow, ankle, knee, wrist
- This inflammation is caused by WBC

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Person will
wake-up and
feel like their big
toe is on fire

Pain is most
severe in
hours after
attack

WBC migrate here
& help to eliminate
uric acid by release
of some cytokine

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TREATMENT

- Here we focus on decreasing pain & swelling
- NSAIDS (like ibuprofen)
- Corticosteroid [DEPTH OF BIOLOGY]
- Colchicine- anti inflammatory effects: inhibiting WBC migration

UNDERLYING CAUSE TREATMENT-

A. Diet modification [DEPTH OF BIOLOGY]

B. Eliminate alcohol, soda , seafood & red meat

Decrease uric acid level

a. Xanthine oxidase inhibitor –

enzyme ~~purine~~

~~uric acid~~

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b. Uricosuric medication- increase excretion of uric acid