### Gout: Over View

Gout is a systemic illness – a metabolic disease
- Defined as a peripheral arthritis resulting from the deposition of sodium urate crystals in one or more joints
- Deposition of uric acid in soft tissue as mono sodium urate
- Deficient purine metabolism – serum uric acid elevation
- Demonstration of intra-articular mono sodium urate (MSU) crystals - to establish a definitive diagnosis of gouty arthritis
- Prevalence is about 0.8 to 1.5% of the population
- Gout is 5 x more in males than premenopausal women
- Prevalence increases with age and increasing serum UA
- Strong familial predisposition – 80% of family members

### Etiology of Gout

- **Primary gout**
  - Overproduction: 10%
  - Under excretion: 90%
- **Secondary gout**
  - Excess nucleoprotein turnover (lymphoma, leukemia)
  - Increased cell proliferation or death (psoriasis)
  - Rare genetic disorder Lesch-Nyhan Syndrome (HGPRT)
  - Drugs – Thiazides, loop diuretics, PZA, Cyclosporine
  - Ethanol abuse – habitual beer drinkers
  - Dehydration – fluid deprivation

### Signs and Symptoms

- **Acute attack**
  - With in few hours - frequently nocturnal
  - Excruciating pain – worst pain ever experienced
  - Swelling, redness and tenderness
  - Podagra: 1st MTP classic presentation
  - May effect knees, wrist, elbow, and rarely SI and hips.
- **Chronic**
  - Destructive Tophaceous Gout
  - Much greater chance if untreated
  - Rarely presents as a chronic illness

### Tophaceous Gout

- Incidence has decreased over last few decades
- Seen in 25-50% of untreated patients (after 10-20yrs)
- Location: Olecranon, bursae, digits, helix of ear
- Damages bone, periarticular structures and soft tissues
- Palpable measure of total body urate load
- Other Extra articular Complications
  - Uric acid calculi (seen in 10-15% of gout pts)
  - Chronic urate nephropathy (in those with tophi)
  - Acute uric acid nephropathy (in pts undergoing chemotherapy)
  - Hypertensive Renal disease is the most common in gout

### ACR Criteria for Diagnosis

**Any 6 of following**
1. More than one attack acute arthritis
2. Max. inflammation with in 1 day
3. Erythema over joint
4. Podagra
5. H/o of Podagra
6. Unilateral tarsal involvement
7. Tophus
8. Hyperuricemia – serum uric acid > 7 mg%
9. Asymmetric swelling on X-ray
10. Subcortical cyst without erosion
11. Negative Culture for infective arthritis

### Treatment

- **Acute Attack**
  - NSAID’s in anti-inflammatory doses
  - Colchicine 0.5 mg oral every 2 hours, may require 6 mg.
    - Neutrophil macro tubular assembly inhibitor
    - Stop with response or side effect (diarrhea, vomiting)
    - Can be used for chronic disease, risk of BM suppression
  - Joint aspiration followed by administration of IAS
  - Oral Prednisone 30 – 60 mg/day for 1-2 weeks - taper
  - ACTH 40-80 IM/IV or Solumedrol
  - Opiates and Tylenol for analgesia
### Uric Acid Lowering Therapy (ULT)
- Never useful to treat acute attacks
- Two Approaches if SUA is more than 7 mg%
  - Uricosuric therapy – Increasing UA excretion
  - If the 24 hour uric acid excretion is < 800 mg
  - Probenecid 500 mg, Sulfinpyrazone 50-100 mg bid
  - Urine output of 2000 ml must be maintained
  - Xanthine Oxidase (XO) inhibitors ↓ UA Production
  - Useful in over producers – urinary UA > 800 mg/24
  - Two drugs – Allopurinol, Febuxostat
  - Precipitation of acute attack is problem

### Febuxostat
- It is recent selective XO inhibitor
- (Uloric) given as 80 mg daily single dose
- In those intolerant to Allopurinol
- In Renal insufficiency
- If target serum uric acid is not achieved
- High baseline serum uric acid levels
- Severe Tophaceous gout

### Probenecid
- Prophylaxis
  - Initial
    - 250 mg oral twice daily for 1 week
  - Maintenance – uricosuric drug
    - 500 mg oral twice daily
    - If symptoms persist or
    - If 24 h urate excretion below 700 mg
    - Incrementally increase by 500 mg every 4 wks.
    - Maximum of 2000 mg/day

### Hyperuricemia
- Hyperuricemia is linked to comorbidities
  - Obesity
  - Hyperlipidemia
  - Metabolic syndrome
  - Hypertension
  - Diabetes mellitus
  - Renal disease
  - Heart failure

### Allopurinol
- Indications for urate lowering therapy (ULT)
  - Recurrent attacks, tophi, bone / joint damage
  - Renal disease and/or nephrolithiasis, ↑ SUA
- Mild Disease – Allopurinol is the drug of choice
  - 100-300 mg/day orally as a single or divided doses
- Moderate to severe - Allopurinol
  - 400-600 mg/day orally as a single or divided dose (2-3 times daily); maximum dose 800 mg/day
- It is a non selective Xanthine Oxidase (XO) inhibitor

### Ten Commandments
- Fast acting NSAIDs are the drugs of choice for Acute Gout
- Anti inflammatory drug Rx. must be continued for 1-2 wks.
- Colchicine an effective alternative for NSAIDs. Slow to work
- IAS are highly effective in acute mono arthritis of Gout
- Oral or parenteral corticosteroids in NSAID intolerance
- Allopurinol should not be used in acute attack of Gout
- Allopurinol should be continued if the pt. is already receiving
- Diuretic use for hypertension to be changed to other agents
- Uricose uric Rx. Must be started after a second attack
- Newer drugs in refractory cases with high serum UA levels.