

NURS 821 Alterations in the Musculoskeletal System

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Lecture 12
Part 1 Joint Disorders

Rheumatic Diseases

- **Incidence**-40 million in U.S.

- By yr. 2020-59 million
- F>M

- Leading cause of disability over 65
- Broad term, encompassing arthritis states
- Connective tissue diseases
- Autoimmune diseases



Rheumatic Diseases

- **Include:**

- Osteoarthritis
- rheumatoid arthritis
- Gout
- Fibromyalgia
- SLE
- Scleroderma
- JRA
- ankylosing spondylitis

- infectious arthritis
 - reactive arthritis
 - psoriatic arthritis
 - Bursitis
 - tendonitis
- (NIAMS, 2000)

Arthritis

- **Definition:** joint inflammation
- A **symptom**
- A small portion of rheumatic diseases
- **Manifestations:** Swelling, redness, heat, pain due to tissue injury or disease
- **Assessment:** when joints involved, symmetrical or asymmetrical, pain relief and methods and patterns
(NIAMS, 2000)

What Diseases/Disorders have an Arthritis Component?

- Any with type III hypersensitivity response components-
- Rheumatoid arthritis
- Lupus
- Lyme
- Psoriasis
- Flu
- Crohn's Disease
- Ulcerative Colitis
- TB
- Hemophilia
- Sickle cell crisis

Differential Diagnosis of Rheumatic Diseases

- **ANA**: autoimmune disorders
- **Arthrocentesis**: crystals, bacteria, viruses
- **Complement**: lupus at low levels
- **CBC**: drugs affect; HCT-anemia; WBC
- **Creatinine+ UA**-underlying kidney disease
- **Sedimentation rate**-inflammation
- **Rheumatoid Factor**
(NIH, 2000)

Osteoarthritis

- **Definition**-degenerative joint disease
- Most common form
- **Incidence**-20.7 million U.S. adults
- **Where**-primarily affects cartilage due to wearing away; may denude
- Bony spurs develop at edges of joint
- **SX**-joint pain, <ROM, loss of function, disability (NIAMS, 2000)

Degenerative Joint Disease

• **Types**

- **Primary:**
 - no risk factors
 - more generalized effects

- **Secondary:**
 - associated with risk factors
 - more localized

• **Pathophysiology**

- Articular cartilage erosion
- Sclerosis of bone under cartilage
- Formation of bone spurs or osteophytes

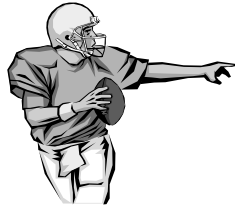


Primary DJD

- **Most common form** of non-inflammatory joint disease
- **Etiology:** aging, decreased cartilage proteoglycans; autosomal recessive
- Usually afflicts males
- Typically distributed through peripheral and central points:
 - hand, wrists, neck (lower cervical spine)
 - lower back (lumbar spine, sacroiliac)
 - hip, knees, ankles, feet

Secondary DJD

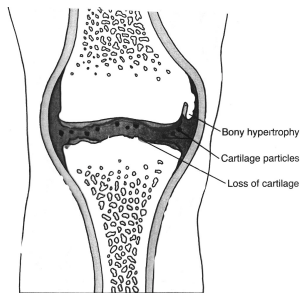
- **Etiology:** conditions causing cartilage damage, subjecting joints or underlying bone to chronic and excessive force
- **Risk Factors**



Pathophysiology of DJD

- Loss of articular cartilage
 - **Early:** cartilage loses glistening appearance
 - **Later:** surfaces flake and deeper longitudinal fissures develop leading to thinning of cartilage leaving subchondral bone unprotected
 - Cysts in subchondral bone may develop and communicate with cartilage fissures
 - Contents in cysts are forced into synovial cavity, breaking articular cartilage which grow out and are called joint mice – synovitis, effusion

Degenerative Joint Disease (DJD)



Gout



- One of the most painful rheumatic diseases.
- **Definition:** metabolic disorder which disrupts control of uric acid production or excretion leading to hyperuricemia and systemic crystallizations
- **Incidence:** 5% of arthritis; males more than females; 40-50; women: post-menopause
- **Etiology:** genetics-autosomal-X linked dominant, obesity, ETOH, lead
- (NIAMS, 2000)

Gout

- **At risk population:** Males over 40, Females after menopause, obese, alcohol, drugs, high purine diet, myeloproliferative and hemolytic disorders
- **Pathology:** Hyperuricemia results from normal purine breakdown (uric acid)
- **Exacerbation:** cold environment, acidotic states
- **Complications:** arthritis, calculi-ESRD
- (NIAMS, 2000)

Process of Gouty Arthritis

- **Theories:**
 - Precipitation of monosodium urate in periphery due to body temperature drop
 - Decreased albumin or glycosaminoglycan levels decrease urate stability
 - Changes in ion concentration- acidosis increases deposits
 - Trauma promotes crystalization



Gout

- **Manifestations:** arthritis symptoms from deposits of uric acid crystals (sodium urate) in connective tissues and/or joint spaces (chondrocalcinosis)

- **Classic presentation**-inflammation of great toe, podagra (75%)

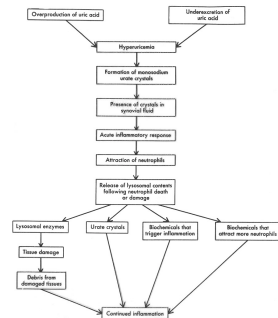
- **May occur at site of prior joint injury**

- **Tophi appear** - deposits in skin – ear, elbow

- **Renal calculi**

(NIAMS, 2000)

Etiology of Arthritis in Gout



Gout Stages

- **Asymptomatic hyperuricemia** – not treated
- **Acute gouty arthritis** – joints affected; acute attack exacerbated by stress, alcohol, drugs, acute illness; usually at night; untx – may subside 3-10 days; attack free for months – years
- **Inter-critical gout**-period between attacks; no symptoms
- **Chronic tophaceous gout**-disabling; develops over 10 years; damage to joints and kidneys

(NIAMS, 2000)

Gout Exacerbations

- **High purine diet**-liver, dried beans and peas, anchovies, gravies
- Exacerbated by salicylates, niacin, diuretics, cold (NIAMS, 2000)