NURS 821 Alterations in the Musculoskeletal System

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Lecture 12

Part 2 Joint Disorders (cont'd)

Rheumatoid Arthritis

- **Definition**: Autoimmune disorder occurring in genetically sensitive individual (usually female) resulting in chronic inflammation of connective tissue, primarily in joints
- **Etiology**: Genetically predisposed person after exposure to precipitating AG (bacteria, mycoplasma, viruses, etc.) develops autoantibodies called Rheumatoid Factor which binds to synovial membrane (**Type III response)**

Type III Hypersensitivity Response

- Immune complex disease
- Interaction of foreign protein (AG) with IgD
- AG AB complexes precipitate in tissues, complement activation, inflammatory response causes widespread vasculitis
- Examples: RA, SLE, serum sickness

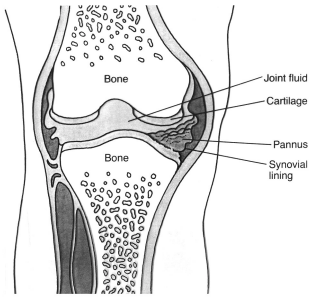
RA Pathophysiology

- **Synovitis** results from complement activation and damage to synovial membrane causing edema and hyperplastic thickening
- Extends to blood vessels causing **vasculitis** and **occlusion** leading to **hypoxia** and **metabolic acidosis**
- **Hallmark**: pannus develops over denuded areas of synovial membrane leading to joint scarring and immobility

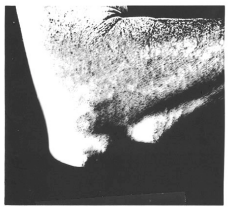
Extra-articular Manifestations of Rheumatoid Arthritis

- **Skin**: Sq nodules, vasculitis (brown spots), bruises
- **Cardiac**: pericarditis, tamponade, myocarditis and valve lesions
- **Pulmonary**: pleurisy, effusion, inflammation
- **Neurological**: peripheral neuropathy, compression syndromes, cervical spine abnormalities

Rheumatoid Arthritis Joint Changes



Rheumatoid Arthritis Deformities



Juvenile Rheumatoid Arthritis

- **Etiology**-unknown; combined genetic and environmental
- **Incidence**-F>M
- **Most common form of arthritis in childhood**
- **Manifestations**-pain, stiffness, swelling, loss of function
- May be associated w rashes or fever and other systemic manifestations

(NIAMS, 2000)

Juvenile Rheumatoid Arthritis

- Differentiated from adults by 3 distinct modes of onset: olioarthritis, polyarthritis, systemic RA
- Other differences: often not systemic, large joints mostly affected; common subluxation and ankylosing of cervical spine; joint pain not as severe; chronic uveitis common; no RF but ANA sero test; nodules not limited to sq.

Psoriatric Arthritis

- **Incidence**-10% of psoriasis patients
- **Progression**-insidious
  w mild symptoms or rapid
- One or more joints
- Discomfort, pain, stiffness, throbbing, swelling, or tenderness, morning stiffness and tiredness,< ROM
- Affects distal joints in fingers and toes (sausages; nail changes), lower back, wrists, knees, ankles
- Conjunctivitis (NPF, 2000)

Psoriatic Arthritis Types

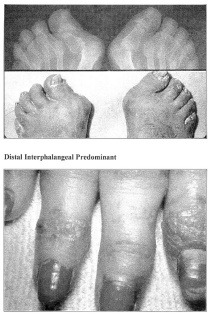
- Symmetric: resembles rheumatoid, multiple joint pairs, disabling
- Asymmetric: 1-3 of any joints, warm, tender, red; pain periodic
- Distal Interphalangeal Predominant (DIP) –5%
- Spondylitis: 5%; inflammation of spinal column – neck, lower back, sacroiliac, spinal vertebrae; may affect connective tissue
- Arthritis mutilans: 5%; severe and disabling – small joints or neck and lower back (NPF, 2000)

Psoriatric Arthritis

- **Age**-any, usually between 30-50
- Hereditary predispostion-genetic markers
- **Etiology**-genetics with immune trigger by bacteria or trauma
- Affects 10% of persons with psoriasis
- Typical presentation-mild,
  affecting hands and feet

(NPF, 2000)

Psoriasis



Distal Interphalangeal Predominant

Ankylosing Spondylitis

- **Definition:** Chronic inflammatory systemic joint disease characterized by stiffening and ankylosing of the spine and sacroiliac joints.
- **Population**: M=F, worse in males, increase in U.S. in American Indians
- **Pathology**: primary inflammation at enthesis, causing fibrosis, ossification, fusing of joint

AS

- Etiology: strong genetic link, associated with HLA-B27 but may be triggered by Klebsiella

Ankylosing Spondylitis

- Incidence-increased in late adolescence or early childhood
- Primarily affects spine, also hips, shoulders, knees
- May result in tendons and ligament inflammation-lower back pain and stiffness

(NIAMS, 2000)

Manifestations of Ankylosing Spondylitis

- **Hallmark:** low back pain and stiffness
- **Others**: typical onset in early 20's: insidious low back pain worse with rest; early A.M. stiffness, difficulty sitting up or twisting; forward flexor, rotation, and lateral flexion of spine restricted and painful.

Pathophysiology of AS

- Begins with fibrocartilage in cartilaginous joints
- Inflammatory cells infiltrate
- Bone and fibrocartilage erodes
- Repair begins leading to further disability. Over time cartilaginous joint structures are replaced by ossified scar tissues.
- Eventually spine assumes classic bamboo appearance

Posture in Ankylosing Spondylitis