Rheumatoid Arthritis

Karen Atkinson, MD MPH
Assistant Professor
Department of Medicine/Division of Rheumatology
Emory University School of Medicine

Objectives
• Know that rheumatoid arthritis is a common type of inflammatory arthritis that occurs more in women.
• Recognize the clinical and laboratory findings in a patient with rheumatoid arthritis.
• Be familiar with radiographic changes of Rheumatoid arthritis.
• Be familiar with the treatment options in a patient with rheumatoid arthritis

Rheumatoid Arthritis

• A disease of aberrant immune response in a genetically predisposed individual.

• The immune response leads to synovial inflammation and destruction of the joint.

Rheumatoid Arthritis

Epidemiology and Genetics

• Prevalence is ~1% of population
• Female:Male 2.5:1
• Peak incidence is 35-50 years
• RA in men under 45 unusual
• Increased risk in first degree relatives

Rheumatoid Arthritis

Criteria for Classification

• Morning Stiffness
• Arthritis of 3 or more joints
• Arthritis of hand joints
• Symmetric Arthritis
• Rheumatoid nodules
• Serum rheumatoid factor
• Radiographic changes

* must satisfy 4/7 criteria; criteria 1-4 present for at least 6 weeks; patients with 2 clinical diagnoses are not excluded

Rheumatoid Arthritis

Clinical Features

• Malaise and fatigue (may be prodrome)
• Stiffness, improves with activity
• Pain and tenderness
• Swelling (effusion/synovial thickening)
• Symmetric Arthritis
• Rheumatoid nodules; usually in RF+, more severe cases,
• Deformity (swan-neck, boutonniere, “trigger” finger, arthritis mutilans, MCP subluxation, ulnar deviation, “hammer toes”)
Rheumatoid Arthritis
Systemic Manifestations

- Generally, patients have systemic symptoms.

- Substantial fraction have tissue damage in other organs.

Rheumatoid Arthritis
Extra-Articular Manifestations

- Heart: Pericarditis, premature atherosclerosis, vasculitis, valvular and valve ring nodules
- Lung: Pleural effusions, interstitial lung disease, bronchiolitis obliterans, nodules, vasculitis
- Skin: Nodules, fragility, vasculitis
- Neuro: Entrapment neuropathy, cervical myelopathy, mononeuritis multiplex, peripheral neuropathy
- Heme: Anemia, thrombocytosis, lymphadenopathy, Felty’s (RA, leukopenia and splenomegaly)
- Bone: Osteopenia
- Eye: Sicca, episcleritis, scleritis, scleralalacia perforans
- Kidney: Amyloidosis, vasculitis
Rheumatoid Arthritis
Laboratory and Radiographic Findings

- Acute Phase Reactants (ESR, CRP)
- Anemia
- Thrombocytosis
- RF 80-85% RA pts positive; 50-60% at initial presentation, the rest convert within the first year
- Anti-CCP 90-95% specific; 70 % sensitivity often present earlier in disease
- Joint Fluid with > 2000 WBCs
- X-rays (periarticular osteopenia, marginal erosions, ulnar deviation, C1-C2 subluxation)

Rheumatoid Factor (RF)

- A major immunologic abnormality in rheumatoid arthritis is the production of autoantibodies with specificity for the Fc fragment of IgG
- Not present in all patients with RA so not necessary for disease.
- Presence of RF is associated with severe disease course and extra-articular manifestations.
- May be present in healthy patients and those with other inflammatory diseases and infections

Anti-CCP

- Anti- Cyclic Citrullinated Peptide Antibodies
  - Anti-perinuclear factor (1960s)
  - Anti-Keratin antibodies (1970s)
- Citrullin is a non-standard amino acid
  - De-amination of arginine by peptidylarginine deiminase (PAD)
- PAD 2 and 4 abundant in RA synovium
- Citrullinated proteins fit better in HLA DR4 antigen binding groove. Citrullinated fibrin may be one of the major autoantigens driving local immune response in RA
- First generation anti-CCP antibodies were very specific but not as sensitive for RA
- Anti-CCP2 has increase sensitivity while maintaining high specificity (90-95%) for RA
- Higher prevalence of anti-CCP antibodies earlier in disease compared to RF
- Presence of anti-CCP in early disease is associated with more aggressive disease

Soft tissue swelling
RA: Pharmacologic Approach

- **NSAIDs**
  - Often must try more than one

- **Disease Modifying Antirheumatic Drugs (DMARDS)**
  - First Choice - plaquenil, sulfasalazine (mild disease)
    - methotrexate (gold standard)
  - If adverse reaction or inefficacy, another agent alone or in combination:
    - Leflunomide, Azathioprine, Cyclosporine, Gold
    - **Biologics**
      - **TNF inhibitors**: etanercept (Enbrel), infliximab (Remicade), adalimumab (Humira), golimumab (Simponi), certolizumab (Cimzia)
      - **Other**: Anakinra (Kineret), Abatacept (Orencia), Rituximab (Rituxan), Tocilizumab (Actemra), Tofacitinib (Xeljanz)
  - low dose corticosteroids as “bridge therapy” or intra-articular steroids for single joint