RHEUMATOLOGY OVERVIEW

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What is Rheumatology?

- Medical science devoted to the rheumatic diseases and musculoskeletal disorders
- Autoimmune disease
- Connective tissue disease
- “rheuma” – “a substance that flows”

Inflammatory vs Non-inflammatory

- Erythema
- Warmth
- Pain
- Swelling
- Prolonged stiffness
- Systemic symptoms
- Laboratory abnormalities

- Mechanical pain (worse with activity)
- Improves with rest
- Stiffness after brief periods of rest (not prolonged)
- Absence of systemic signs

Differential Diagnosis for Different Joint Patterns

- Monoarticular inflammatory
  - trauma, hemarthrosis, spondyloarthropathy
  - Septic arthritis, crystal induced
- Oligoarticular
  - Spondyloarthropathy, crystal induced, infection related
- Polyarticular
  - RA, SLE, crystal induced, infectious

Rheum Diseases You Will Encounter

- Osteoarthritis
- Rheumatoid Arthritis
- Seronegative spondyloarthropathy
- Crystal induced arthritis
- Systemic lupus erythematosus
- Vasculitis
- Other important rheumatologic diseases
  - Scleroderma, Inflammatory Myopathy

OSTEOARTHRITIS

- Most common form of arthritis
- > 50 years of age
- Risk factors: age, obesity, occupation, history of trauma
- Most common sites: hands, feet, knees, hips, AC joints, and facet joints of the cervical and lumbosacral spine
- PAIN (mechanical type), stiffness (< 30 minutes)
- Non inflammatory, no systemic involvement
- DIP/PIP involvement; spares the wrists (Heberden's/ Bouchard's)

Treatment

- Minimize risk factors
- Physical therapy
- Analgesic medications
  - NSAIDs
  - Tylenol, Tramadol
  - Periodic steroid injection in selected cases
- Joint replacement in advanced cases

RHEUMATOID ARTHRITIS

- Chronic (>6 wks), inflammatory
- Female > Male
- AM stiffness lasting at least 1 hr
- Typically involves wrist, MCP, or PIP joints
- Polyarticular and symmetric
- Swan neck/Boutonniere/ulnar deviation
- Extra-articular manifestations
  - Rheumatoid nodules, interstitial lung disease, vasculitis

Diagnostic Criteria: Rheumatoid Arthritis

- Target population
  - At least 1 joint with definite synovitis
  - Synovitis not better explained by another disease

- Score of >/= 6/10 needed
- Joints
  - 1 large (0), 2-10 large (1), 1-3 small (2), 4-10 small (3)
  - >10 joints including at least 1 small (5)
- Serology (at least 1 test result needed)
  - Negative RF and CCP (0), Low positive RF or CCP (2)
  - high positive RF or CCP (3)
- Acute phase reactants (at least 1 test needed)
  - Normal CRP and ESR (0), abnormal CRP or ESR (1)
- Duration of symptoms
  - < 6 wks (0)
  - > 6 wks (1)

Treatment

- Short term: prednisone
- Mild disease:
  - NSAIDs, hydroxychloroquine, sulafasalazine, azathioprine

- Moderate to severe:
  - Oral weekly methotrexate, leflunomide (alternative to methotrexate)
  - anti-TNF agents
    - Adalimumab, Etanercept, Infliximab (IV), et al
  - CTLA4 agonist (inhibit T cell co-stimulatory process
    - Abatacept
  - anti-CD20 (B cells)
    - Rituximab
  - anti-IL1
    - Anakinra
  - anti-IL6
    - Tocilizumab

Seronegative Spondyloarthropathy

- Seronegative
- Oligoarticular, assymetric
- Chronic, inflammatory
- Sacroiliac involvement
- Enthesopathy
- Spinal involvement (inflammatory)
- HLA B27

Seronegative Spondyloarthropathies

- Ankylosing spondylitis
- IBD associated arthropathy
- Psoriatic arthritis
- Reactive arthritis
- Undifferentiated spondyloarthropathy

Treatment

- Similar to treatment for rheumatoid arthritis
- 3 differences
  - hydroxychloroquine can worsen psoriasis
  - Axial involvement
    - Biologic therapy recommended
  - TNF alpha inhibitors are mainstay for biologics (the other biologics not shown to be as effective)

GOUT

- Recurrent, episodic inflammatory arthritis
- Peak of pain: 24 hours; subside in 3-10 days
- 75 % of initial attacks in 1st MTP joint (podagra)
- Usually monoarticular, may be polyarticular
- Hyperuricemia may or may not be present (normal or low in up to 30% patients with acute attack)
- Predisposing factors and associated conditions: surgery, medications (DIURETICS, low dose aspirin, cyclosporine A), alcohol ingestion, hypertension, renal insufficiency, hyperlipidemia

Treatment

- Gout
  - Acute
    - NSAIDs (ibuprofen, indocin, naproxen), Colchicine, Steroids (prednisone), steroid injection if appropriate, anakinra
  - Long term (2 or more attacks/year, tophi, erosions)
    - allopurinol, febuxostat, probenecid
  - Prophylaxis
    - Colchicine, low dose prednisone, or NSAIDs (up to 6 months)
- Pseudogout
  - Acute
    - same as above
  - Long term
    - N/A, methotrexate in refractory cases

Systemic Lupus Erythematosus

Young women, multisystemic disease

- Malar Rash
- Discoid Rash

- Serositis
- Oral ulcers
- Arthritis
- Photosensitivity

- Blood disorder
- Renal disorder
- ANA*
- Immunologic abnormalities
  - (anti-Smith antibody, anti-double stranded DNA, anti-phospholipid antibodies)
- Neurologic symptoms

Treatment

- Short term: prednisone
- Mild or cutaneous disease
  - Hydroxychloroquine
- Moderate to severe disease
  - Azathioprine, Mycophenolate mofetil
- Severe disease
  - Mycophenolate mofetil
  - Rituximab
  - Cyclophosphamide

Scleroderma

- Localized vs Systemic
- Systemic : Diffuse or Limited
  - Limited = CREST (Calcinosis, Raynaud's, Esophageal dysmotility, Sclerodactyly, Telangiectasias)
  - Limited
    - Skin involvement distal to MCPs
    - Lung complication: Primary pulmonary hypertension
    - More esophageal involvement, less colon involvement, telangiectasias
    - Anti-Centromere antibodies
  - Diffuse
    - Lung complication: Interstitial lung disease/fibrosis
    - Diffuse Scl GI complications ie) colon involvement more common
    - Scl 70 Antibodies
  - Scleroderma renal crisis can occur in both

Treatment

- No single medication for all manifestations of scleroderma
- Treat each manifestation
  - GERD: Proton pump inhibitors
  - Raynaud's: calcium channel blockers (nifedipine), losartan, sildenafil
  - Pulmonary hypertension: sildenafil, calcium channel blocker
  - Interstitial lung disease: mycophenolate mofetil, azathioprine
  - Scleroderma renal crisis: **ACE inhibitor**

Vasculitis

- Inflammation & necrosis of blood vessel
- Perforation & hemorrhage, thrombosis, ischemia
- Large vessel
  - Takayasu, Giant Cell Arteritis
- Medium vessel
  - Polyarteritis nodosa, Kawasaki's
- Small
  - Wegener's granulomatosis, Microscopic polyangiitis, Churg-Strauss, Goodpasture Syndrome, Cryoglobulinemia, Henoch-Schonlein purpura
- ANCA –antineutrophil cytoplasmic antibodies*

Giant Cell Arteritis

- Patients >50 y/o
- Cranial symptoms—superficial HA, scalp tenderness, jaw claudication, blindness
- Polymyalgia rheumatica—pain and stiffness of proximal joints
- Fever, systemic symptoms
- Decreased temporal artery pulse
- Elevated ESR and CRP
- Diagnosis: Biopsy of temporal artery

Treatment

- Large vessel vasculitis
  - High dose steroids (prednisone 1mg/kg/day)
    - Solumedrol 1g daily for 3 days if vision changes in GCA
  - Weekly oral methotrexate if cannot wean steroids
  - Anti-IL6: tocilizumab in refractory cases
- Medium vessel vasculitis
  - Steroids, cyclophosphamide when appropriate
  - Treat underlying HBV if present in PAN
- Small vessel vasculitis
  - Steroids, methotrexate or azathioprine for mild disease
  - Severe disease: Rituximab, cyclophosphamide, plasma exchange
  - Treat underlying HCV if present in cryoglobulinemia

Idiopathic Inflammatory Myopathy

- Polymyositis
- Dermatomyositis

- PM and DM
  - Proximal muscle weakness
  - Muscle pain not a typical symptom if chronic
  - Elevated muscle enzymes: CK, Aldolase, LDH
- Diagnosis: biopsy
- Lung involvement: interstitial lung disease
- Increased risk for malignancy: breast cancer, ovarian cancer, adenocarcinoma

Treatment

- Steroids, high dose prednisone followed by taper

- Steroid sparing agents
  - Methotrexate, azathioprine
- Interstitial lung disease
  - Mycophenolate, azathioprine
- Cutaneous manifestations
  - Hydroxychloroquine