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”
Diagnostic Approach

• Articular vs non-articular
  – ie) hip vs trochanteric bursitis
• Mechanical vs inflammatory
• Poly- vs oligo- vs monoarticular
• Acute vs chronic
• Localized vs systemic
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 $\geq 6/10$ 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, asymmetric
• 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, probencid
  – 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