Arthritis in Older Adults

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Objectives

• Examine the prevalence and course of arthritis in older adults
• Describe the different types of arthritis in older adults
• Review pharmacologic treatments of arthritis with emphasis on the geriatric pharmaceutical care guidelines
• Identify different methods of management of arthritis utilizing non-pharmacologic therapy
Prevalence of Arthritis

- 50 million (22.2%) adults in US
- Half of all people over the age of 65
- Greater in women (24%) than men (18%)
- By 2020, nearly 60 million people
- Leading cause of disability
Disease Course

• Almost any type of arthritis progresses with aging
• Increasing disability affects
  - function
  - independence
  - need for additional resources
• Nearly 10% of community-living elders > 65 need help with ADLs

Luggen A, Meiner S. Care of the Older Adult with Arthritis. New York: Springer; 2002
Musculoskeletal Disorders in Elderly Patients

- Osteoarthritis (OA)
- Rheumatoid arthritis (RA)
- Crystal induced arthritis (gout, CPPD)
- Polymyalgia rheumatica (PMR)
- Regional rheumatic pain syndromes (tendonitis, bursitis, etc.)
- Internal joint derangements (meniscal, rotator cuff tear, etc.)
- Fibromyalgia
- Systemic vasculitis
- Septic arthritis
- Paget's disease of bone
- Sarcoidosis
- Drug-induced SLE, Sjogren's syndrome, Poly- or Dermatomyositis
- Paraneoplastic syndromes
Case Presentation

• 81 year-old woman presents with complaints of pain in both knees, hips, and thumbs. She has occasional back pain. She reports stiffness in the morning for 5 minutes.
OSTEOARTHRITIS (OA)
General Approach to Arthritis

Different Presentations of Joint Symptoms

- **Inflammatory** (example: RA)
  - morning stiffness >30 minutes
  - symptoms improve with activity
  - swelling is often present

- **Non-Inflammatory** (example: OA)
  - morning stiffness <30 minutes
  - symptoms worse with activity
  - swelling may or may not be present
Prevalence of OA

- Women > Men
- DIP > Knee > Hip
- Tends to begin earlier in women
## Osteoarthritis: General Features

<table>
<thead>
<tr>
<th>Clinical</th>
<th>Laboratory</th>
<th>Radiographic</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age $&gt;$50</td>
<td>ESR $&lt;$40 mm/Hr</td>
<td>Osteophytes</td>
</tr>
<tr>
<td>Morning Stiffness $&lt;$30 Minutes</td>
<td>RF Titer $&lt;$1:40</td>
<td>Joint Space Narrowing</td>
</tr>
<tr>
<td>Crepitus</td>
<td>Noninflammatory Synovial Fluid</td>
<td>Subchondral Cysts and Sclerosis</td>
</tr>
<tr>
<td>No Inflammation</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bony Enlargement or Tenderness</td>
<td></td>
<td>Malalignment</td>
</tr>
</tbody>
</table>
Primary Osteoarthritis: Heberden’s & Bouchard’s nodes

1. Elderly patient
2. Morning stiffness < 30 min
3. Spine, hips, knees, 1st C-MC, DIP, PIP involved
4. Pain greater after activity
Osteoarthritis: hand (radiograph)
OA: first carpometacarpal joint
Pathophysiology of OA

- OA is the result of both mechanical and biological destruction
- **Primary OA**: idiopathic risk factors
- **Secondary OA**: risk factors identified which contribute to development of OA
Risk Factors for OA

- Age
- Female Gender
- Weight
- Trauma
- Genetic predisposition
- Inflammatory (RA, gouty arthritis, infection)
- Metabolic Disorders (e.g. hemochromatosis, CPPD)
- Congenital or developmental disorders (e.g. hip dysplasia, hypermobility syndrome)
- Neuromuscular Dysfunction
- Osteonecrosis
- Neuropathic arthropathy (Charcot)
Useful Key Points About OA Diagnosis

- Before a diagnosis of “idiopathic OA”, remember the clues to secondary etiology
  - Joints uncommonly affected by idiopathic disease (shoulders, wrist, elbow, ankle)
  - Presence of articular cartilage calcification may point to endocrine, metabolic, or heritable disorder

- Acute, severe joint pain is uncommon in OA
  - Synovial fluid >2,000/ mm$^3$ is consistent with an additional diagnosis (such as crystal, infection, etc.)
Chondrocalcinosis
X-ray of the right hand

Chondrocalcinosis
Underlying Disease Associations of OA and CPPD

- Hemochromatosis
- Hyperparathyroidism
- Hypothyroidism
- Neuropathic Joints
- Trauma
General Principles of Management for OA

- Establish OA
- Decrease pain with pharmacotherapeutics
- Exercises to
  - increase function
  - increase strength
  - reduce fall risk
- Patient Education
  - weight loss
  - heat/cold modalities
American College of Rheumatology 2012 Recommendations for the Use of Nonpharmacologic and Pharmacologic Therapies in Osteoarthritis of the Hand, Hip, and Knee

MARC C. HOCHBERG, ROY D. ALTMAN, KARINE TOUPIN APRIL, MARIA BENKHALTI, GORDON GUYATT, JESSIE MCGOWAN, TANVEER TOWHEED, VIVIAN WELCH, GEORGE WELLS, AND PETER TUGWELL

Guidelines and recommendations developed and/or endorsed by the American College of Rheumatology (ACR) are intended to provide guidance for particular patterns of practice and not to dictate the care of a particular patient. The ACR considers adherence to these guidelines and recommendations to be voluntary, with the ultimate determination regarding their application to be made by the physician in light of each patient's individual circumstances. Guidelines and recommendations are intended to promote beneficial or desirable outcomes but cannot guarantee any specific outcome. Guidelines and recommendations developed or endorsed by the ACR are subject to periodic revision as warranted by the evolution of medical knowledge, technology, and practice.

The American College of Rheumatology is an independent, professional, medical and scientific society which does not guarantee, warrant, or endorse any commercial product or service.

Objective. To update the American College of Rheumatology (ACR) 2000 recommendations for hip and knee osteoarthritis (OA) and develop new recommendations for hand OA.

Methods. A list of pharmacologic and nonpharmacologic modalities commonly used to manage knee, hip, and hand OA as well as clinical scenarios representing patients with symptomatic hand, hip, and knee OA were generated. Systematic evidence-based literature reviews were conducted by a working group at the Institute of Population Health, University of Ottawa, and updated by ACR staff to include additions to bibliographic databases through December 31, 2010. The Grading of Recommendations Assessment, Development and Evaluation approach, a formal process to rate scientific evidence and to develop recommendations that are as evidence-based as possible, was used by a Technical Expert Panel comprised of venture stakeholders to formulate the recommendations.
Nonpharmacologic Conditional Recommendations for Management of Hand OA

- Evaluation of ability to perform activities of daily living (ADLs)
- Joint protection techniques
- Assistive devices as needed
- Thermal modalities
- Splints for patients with trapeziometacarpal joint OA
Nonpharmacologic Recommendations for Knee and Hip OA

- Cardiovascular (aerobic) and/or resistance land-based exercise
- Aquatic exercise
- Weight - loss
Nonpharmacologic Conditional Recommendations for Knee and Hip OA

- Self-management programs
- Manual therapy with supervised exercise
- Psychosocial interventions
- Thermal agents
- Medially directed patellar taping
- Insoles & walking aids, as needed
- Tai chi programs, Chinese acupuncture
- Transcutaneous electrical stimulation
Not Recommended for Knee and Hip OA

- Balance exercises
- Laterally wedged insoles
- Manual therapy alone
- Knee braces
- Laterally directed patellar taping
- Tai Chi in OA of the hip
Pharmacologic Therapy for OA

• Acetaminophen
  - first line, < 4,000 mg/day, liver toxicity
• NSAIDs
  - GI bleeding, anemia, PUD, gastritis, HTN, renal insufficiency, edema
• COX-2 Inhibitors
• Tramadol
  - Nausea/ vomiting, contraindicated in patients taking SSRIs, tricyclic antidepressants
Pharmacologic Therapy for OA

• Narcotic pain medications
• Adjuvant agents
  - Tricyclic antidepressants
  - Antispasmodics
  - Hormones and steroids
  - Topical capsaicin and NSAIDs
Intraarticular Therapy

- **Corticosteroids**
  - Good pain relief
  - May last for 3-4 months
  - Potential complications:
    - infection
    - bleeding
    - hyperglycemia

- **Hyaluronate Injections**
  - Symptomatic delay
  - Expensive
  - No evidence of long term benefit
  - May have marginal benefit for longer pain relief on some patients
Table 2. Pharmacologic recommendations for the initial management of hand OA*

We conditionally recommend that health professionals should use one or more of the following:
- Topical capsaicin
- Topical NSAIDs, including trolamine salicylate
- Oral NSAIDs, including COX-2 selective inhibitors
- Tramadol

We conditionally recommend that health professionals should not use the following:
- Intraarticular therapies
- Opioid analgesics

We conditionally recommend that persons age $\geq 75$ years should use topical rather than oral NSAIDs. In persons age $<75$ years, the TEP expressed no preference for using topical rather than oral NSAIDs.

* No strong recommendations were made for the pharmacologic management of hand osteoarthritis (OA). For patients who have an inadequate response to initial pharmacologic management, please see the Results for alternative strategies. NSAIDs = nonsteroidal antiinflammatory drugs; COX-2 = cyclooxygenase 2; TEP = Technical Expert Panel.
Table 4. Pharmacologic recommendations for the initial management of knee OA*  

We conditionally recommend that patients with knee OA should use one of the following:  
Acetaminophen  
Oral NSAIDs  
Topical NSAIDs  
Tramadol  
Intraarticular corticosteroid injections  

We conditionally recommend that patients with knee OA should not use the following:  
Chondroitin sulfate  
Glucosamine  
Topical capsaicin  

We have no recommendations regarding the use of intraarticular hyaluronates, duloxetine, and opioid analgesics.
Table 6. Pharmacologic recommendations for the initial management of hip OA

We conditionally recommend that patients with hip OA should use one of the following:

- Acetaminophen
- Oral NSAIDs
- Tramadol
- Intraarticular corticosteroid injections

**We conditionally recommend that patients with hip OA should not use the following:**

- Chondroitin sulfate
- Glucosamine

We have no recommendation regarding the use of the following:

- Topical NSAIDs
- Intraarticular hyaluronate injections
- Duloxetine
- Opioid analgesics
Therapeutic Approach to OA

Non-Inflammatory OA

Nonpharmacologic Interventions

Trial of Acetaminophen

Trial of NSAID

Intraarticular glucocorticoid injection

Topical therapy, hyaluronates, opioids

Surgery or chronic pain management
Case Presentation

- 75 year-old man presents with complaints of pain in both hands, wrists, shoulders, knees and ankles. The pain is worse in the morning. He reports stiffness in the morning for about one hour.
- RF and anti-CCP are negative
- ESR – 32, CRP – 1.8 mg/dL
RHEUMATOID ARTHRITIS
Who is Affected by RA?

RA prevalence is approximately 1% (1 per 100 people)\(^1\)

Women are affected 2-3 times more often than men\(^2\)

RA impacts over 1.3 million people in the United States\(^2\)

RA is more common in smokers than non-smokers

RA usually occurs in the middle-aged population. Prevalence in age 60 years and older - 2%\(^1\)

1. American College of Rheumatology: www.Rheumatology.org
Clinical Presentation of LORA

• Near equal sex F:M ratio ranging from 1.1:1 - 1.9:1.4
• More abrupt onset
• Relatively prominent large-joint involvement, in particular shoulder synovitis
• Fewer extra-articular features, but associated with fever, weight loss and depression

Diagnosis/Laboratory Findings in LORA

- ESR and CRP higher than in younger, but not after age adjustment
- Lower frequency of positive RF
- No controlled study of anti-CCP antibodies in an LORA
- Higher baseline JSN score, most likely due to OA
LORA
Differential Diagnosis

- Polymyalgia rheumatica (PMR)
- OA
- Gout
- Pseudogout
- Occult malignancy
Goals of Treatment

Relief of symptoms

Prevention of structural damage and deformity

Maintenance of patients normal lifestyle

Preservation of function

The effective management includes a combination of medications, effective alternative treatments, physical and occupational therapy, changes in diet and food, rest, exercise, lifestyle changes and joint protection.
Medication Options for RA

**NSAIDs**
- Non-Steroidal Anti-Inflammatory Drugs
  - Reduce inflammation and relieve pain
  - Do not modify the course of the disease

**Corticosteroids**
- Steroids With Anti-Inflammatory Effects
  - Reduce pain & inflammation
  - Typically used at low doses to minimize side effects
  - Can be injected into the joints

**DMARDs**
- Disease-Modifying Anti-Rheumatic Drugs
  - Non-Biologic & Biologic
  - Reduce pain and inflammation
  - Slow the progression of disease

Source: Rheumatoid Arthritis Media Handbook
Corticosteroids for RA

- Only used as bridge therapy and tapered as quickly as possible
- Low dose of prednisone (up to 10 mg/day) usually effective and no need for higher doses
- Alternative: IM DepoMedrol or Kenalog (up to 80 mg)
- Osteoporosis prophylaxis
<table>
<thead>
<tr>
<th>Therapeutic Agent</th>
<th>Usual Maintenance Dose</th>
<th>Route</th>
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<tbody>
<tr>
<td>Methotrexate</td>
<td>7.5–20 mg/wk</td>
<td>Oral, SQ</td>
</tr>
<tr>
<td>Hydroxychloroquine</td>
<td>200 mg BID</td>
<td>Oral</td>
</tr>
<tr>
<td>Sulfasalazine</td>
<td>1,000 mg 2–3 x a day</td>
<td>Oral</td>
</tr>
<tr>
<td>Leflunomide</td>
<td>10 - 20 mg/day</td>
<td>Oral</td>
</tr>
<tr>
<td>Azathioprine</td>
<td>50–150 mg/day</td>
<td>Oral</td>
</tr>
<tr>
<td>D-penicillamine</td>
<td>250–750 mg/day</td>
<td>Oral</td>
</tr>
<tr>
<td>Gold - Auranofin</td>
<td>3 mg BID</td>
<td>Oral</td>
</tr>
<tr>
<td>Gold</td>
<td>25–50 mg q 2–4 wks</td>
<td>IM</td>
</tr>
<tr>
<td>Minocycline</td>
<td>100 mg BID</td>
<td>Oral</td>
</tr>
<tr>
<td>Cyclosporine</td>
<td>2.5–4 mg/kg/day</td>
<td>Oral</td>
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# Approved biologic agents for RA

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<tr>
<th>Therapeutic Agent</th>
<th>Trade Name</th>
<th>Mechanism of Action</th>
<th>Usual Maintenance Dose</th>
<th>Route</th>
</tr>
</thead>
<tbody>
<tr>
<td>Infliximab</td>
<td>Remicade</td>
<td>TNF-α inhibitor</td>
<td>3–10 mg q 4 - 8 wks</td>
<td>IV</td>
</tr>
<tr>
<td>Etanercept</td>
<td>Enbrel</td>
<td>TNF-α inhibitor</td>
<td>50 mg weekly</td>
<td>SQ</td>
</tr>
<tr>
<td>Adalimumab</td>
<td>Humira</td>
<td>TNF-α inhibitor</td>
<td>40 mg q 2 wks</td>
<td>SQ</td>
</tr>
<tr>
<td>Certolizumab Pegol</td>
<td>Cimzia</td>
<td>TNF-α inhibitor</td>
<td>200 mg q 2 wks or 400 mg q 4 wks</td>
<td>SQ</td>
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<tr>
<td>Golimumab</td>
<td>Simponi</td>
<td>TNF-α inhibitor</td>
<td>50 mg q 4 wks</td>
<td>SQ</td>
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<tr>
<td>Golimumab</td>
<td>Aria</td>
<td>TNF-α inhibitor</td>
<td>mg q 8 wks</td>
<td>IV</td>
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<td>Tocilizumab</td>
<td>Actemra</td>
<td>Anti-IL-6 recep</td>
<td>4 or 8 mg/kg q 4 wks 162 mg q 1 or 2 weeks</td>
<td>IV SQ</td>
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<tr>
<td>Anakinra</td>
<td>Kineret</td>
<td>Anti-IL-1 recep</td>
<td>100 mg daily</td>
<td>SQ</td>
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<td>Abatacept</td>
<td>Orencia</td>
<td>Anti-CTLA4-Ig</td>
<td>500 – 1000 mg q 4 wks 125 mg weekly</td>
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<tr>
<td>Rituximab</td>
<td>Rituxan</td>
<td>B-cell depletion</td>
<td>1000 mg 2 wks apart</td>
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</table>
Safety Considerations with Biologics

• Serious infections
• Opportunistic infections (TB)
• Malignancies
• Demyelination
• Hematologic abnormalities
• Administration reactions
• Congestive heart failure
• Autoantibodies and lupus
• Combination of biologics not to be used
Summary

• Rheumatic and musculoskeletal disorders are the most prevalent chronic conditions in the United States and most of the affected patients are elderly

• With improvements in healthcare and increasing life expectancy, recognizing and appropriately managing elderly patients will become ever more important
Thank you