Rheumatoid In The Elderly

Irene Kelleher
Chronic systemic inflammatory disease of unknown cause affecting primarily the peripheral joints.

Constitutional symptoms include fatigue, malaise, morning stiffness

Extra-articular involvement of organs such as skin, heart, lungs, kidneys, eyes etc.

Causes joint destruction often leading to significant morbidity and mortality
1. Genetic Association with HLA-DR4/DR1. 

15%-20% concordance in monozygotic twins.

2. Infectious agents: e.g. Mycoplasma, EBV, Rubella


4. Immunological: T cells play a pivotal role - T helper cells lead to production of TNF-alpha and IL-1 which appear
Frequency:

worldwide prevalence = 1%

Incidence increases with age:

at age 70 incidence is 2.5 times that observed in those aged 40-49 years

Prevalence at age 75 = up to 7%
Activities of daily living are impaired in most

Remission is uncommon (5-10%)

After 10 years 50% have substantial functional disability

Factors associated with poorer prognosis:

- Insidious polyarticular onset
- Male sex
- Advanced age
- Extra-articular manifestations
• Excess mortality associated with severe RA parallels that of 3 – vessel CAD or Stage IV Hodgkins

• Co – morbidities which contribute to this excess

  Cardivascular disease

  Infections esp. pulmonary, skin & joint

  GI blood loss

  Lymphoproliferative disorders

  Renal disease
- Morning stiffness > 1hr
- Arthritis hand joints (wrist, MCP or PIP)
- Arthritis of 3 or > joints simultaneously
- Symmetrical arthritis
- Serum RF
- Rheumatoid nodules
- X - ray features typical of RA
Criteria developed for epidemiological purposes but have proven clinical value

At least 4 criteria must be fulfilled to classify a patient as having RA but this does not absolutely confirm or refute the diagnosis.

Most patients present with constitutional symptoms such as malaise, fever, fatigue, weight loss and weakness before appearance of overt joint inflammation and swelling.
Joints affected: MCPs, wrist, PIPs, knee, MTP, shoulder, ankle, cervical spine, hip, elbow and TMJ.

Characteristically the small joints of the hands and feet are affected symmetrically.

Joints show features of inflammation.

Joint and tendon destruction lead to deformities such as ulnar deviation, Z shaped thumb, bouton and swan-neck deformity and subluxation.
Extra - articular features
• present in 30% of patients with Seropositive disease

- Diagnostic specificity
- Often over pressure points at extraarticular sites
- Regress with treatment
- Palpable purpura
- Skin ulceration
- Nailfold infarcts
- Gangrene of the fingers and toes
Asymptomatic pericardial effusions are common

Symptomatic pericarditis is rare

Postulated reasons for increased mortality from CV disease in patients with RA

- Thrombocytosis & ↑ plt adhesiveness

- Intimal hyperplasia

- possible underlying coronary vasculitis
Kidneys

Not commonly affected directly

2° involvement due to meds (eg NSAIDs, gold) or amyloidosis

GI

Again most affects are 2° to medications such as NSAIDS
Keratoconjunctivitis sicca
Secondary Sjogren’s syndrome
Episcleritis
Scleritis
Scleromalacia perforans
• Carpal tunnel syndrome
• Atlantoaxial subluxation
• Cord compression
• Polyneuropathy predominantly sensory
• Mononeurits multiplex
• Pleural effusion
• Diffuse fibrosing alveolitis
• Rheumatoid nodules
• Rheumatoid pneumoconiosis (Caplan’s syndrome)
Anaemia due to
- Chronic disease
- NSAID induced GI blood loss
- Hyperslenism
- Suppression of bone marrow function, folate deficiency and haemolysis 2° DMARDs
- Associated pernicious anaemia
1. Diffuse weakness, soreness and stiffness most marked in the lower neck and shoulders.

2. An array of musculoskeletal and systemic complaints with elevated ANA.

3. Pain, swelling and decreased motion of a limited number of large joints.

4. Inactive RA which has burnt out leaving deformities and disabilities.
Both PMR and RA can present with marked morning stiffness in the neck, shoulders and upper back. Both have constitutional symptoms such as weakness, fatigue and sweating.

Response to prednisolone may be helpful:

- PMR – usually a dramatic response within 24 hours
- RA – more gradual response over days or weeks
<table>
<thead>
<tr>
<th>Onset</th>
<th>Usually abrupt</th>
<th>Abrupt or gradual</th>
</tr>
</thead>
<tbody>
<tr>
<td>Initial manifestations</td>
<td>Siffness of neck or back</td>
<td>In Elderly can be like PMR</td>
</tr>
<tr>
<td>Involvement of PIPs and MCPs</td>
<td>Rare</td>
<td>Common but not always</td>
</tr>
<tr>
<td>Clinical inflammation of large joints</td>
<td>Rare</td>
<td>Common but not always</td>
</tr>
<tr>
<td>Usual Course</td>
<td>Remission in 1 year +/- temporal arterits</td>
<td>Chronic</td>
</tr>
<tr>
<td>Radiography</td>
<td>No joint changes</td>
<td>Structural damage common.</td>
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</table>
1. Fibromyalgia – Fatigue, musculoskeletal aching and difficulty sleeping but usually sharply defined areas of tenderness ‘trigger points’ at the base of the neck, back and adjacent to large joints can be found.

2. Underlying malignancy.

3. Reactive or undifferentiated arthritis –
Positive ANA tests are more common in elderly however a significant positive result requires further consideration.

In one study of patients with ANA titres of 1 in 40 or higher a diagnosis was established in 87% as follows:

- SLE 19%
- Drug induced Lupus 11%
- Autoimmune thyroiditis 10%
- Viral infections 6.5%
- RA 3-4%
Dilema = OA or RA

Based on textbook descriptions the differential should be easy however in the elderly it can be less clear:

- RA can develop in a patient with well established OA.
- Almost all with long standing RA will exhibit significant OA.
- There may be coincidental pseudogout.
- Fatigue and constitutional symptoms may be due to physical deconditioning, depression or coexisting disease.
<table>
<thead>
<tr>
<th></th>
<th>RA</th>
<th>OA</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Worst time</strong></td>
<td>Morning</td>
<td>Evening</td>
</tr>
<tr>
<td><strong>Morning stiffness</strong></td>
<td>Almost always for 1-5 h or all day</td>
<td>Maybe present but duration &lt;45 minutes</td>
</tr>
<tr>
<td><strong>Constitutional symptoms</strong></td>
<td>Usually</td>
<td>Absent unless concommittent disease</td>
</tr>
<tr>
<td><strong>Radiography</strong></td>
<td>MCP, PIP and wrist involvement. Juxta articular OP.</td>
<td>DIP and PIP joints, not usually in wrists</td>
</tr>
<tr>
<td><strong>Joint fluid</strong></td>
<td>WCC 3,000 - 20,000, fluid watery, mucin clot poor</td>
<td>WCC &lt; 3,000, fluid viscous, good mucin clot</td>
</tr>
</tbody>
</table>
If the degree of inflammation of a single joint is out of proportion to the involvement in the other joints consider:

- Septic arthritis
- Gout
- Pseudogout (extremely common in elderly)

Joint aspiration is mandatory and clarifies the diagnosis.
The activity of the rheumatoid process may have subsided but sequelae remain:

- Deformities of the hands and wrists with subsequent disability.
- Destructive changes of the hips, knees and TMJ.
- Atlantoaxial instability (anaesthetic risk).
- Residua of treatment eg. OP 2° steroids (+ inactivity)
In such patients a multifaceted plan for management and support is essential.

The first step is functional assessment of capacity for ADLs.

Possible presence of depression and cognitive deficiency should be assessed.

A key issue is the continued threat of independent or related intercurrent illness.

Musculoskeletal pain, weakness, fatigue, weight loss and ESR should not be automatically attributed to RA and disorders such as malignancy, hypothyroidism, TB and
Aims:

To help confirm the diagnosis

To establish its severity

To provide a baseline for response to treatment

To assess organ dysfunction due to co morbid disease before starting medications
• Degree of joint pain
• Duration of morning stiffness
• Duration of fatigue
• Limitation of movement
• Assessment of ability for ADLs
• Social situation
• Assess all joints for evidence of inflammation (tender and swollen joint counts).

• Mechanical joint problems: loss of motion, crepitus, instability, malalignment and/or deformity.

• Assess balance, gait and performance of simple tasks.

• Extraarticular manifestations
• Acute phase reactants: ESR, CRP, ferritin

• FBC

• LFTs – transaminases and alk. phos., ↓albumin in active disease. assessment of baseline hepatic function
  ▪ Urea, electrolytes and creatinine.

  ▪ Urinalysis
- ANA and Rheumatoid factor (only to diagnose – does not reflect disease activity)
- In the future possibly newer antibodies such as anti-CCP and anti-RA33
- Synovial fluid analysis
- Biopsies - Rheumatoid nodules or skin, rectum or kidney
• Xrays of the hands, feet, knees, elbows, hips, pelvis and spine to diagnose and provide a baseline for monitoring disease progression and response to treatment.

• MRI with abnormalities of the cervical spine

• US for effusions in joints difficult to access and cysts (Baker cysts)

• Densitometry to diagnose OP
Goals of treatment:

- Relief of symptoms
- Preservation of function
- Prevention of structural damage and deformity
- Maintainence of patients normal lifestyle
• Comprehensive conservative management
• NSAIDs
• Disease modifying agents
• Steroids – both oral and intra-articular
• Surgery
Physiotherapy

- ↓ pain using superficial or deep heat, cold is preferable for an acutely inflamed joint
- range of movement (ROM)
- strength and endurance with exercise programmes
- ↓ muscle atrophy
- Prevention and correction of deformities and malalignment using splints and orthotics
Occupational therapy

- Assists physiotherapy in use of splints and orthotics
- Provides devices to maximise function, maintain independence and minimise joint stress eg. equipment to assist with transfers, dressing, feeding, toileting, cooking and ambulation.
- Energy conservation education: goal is to save energy and protect joints while maintaining ROM and cardiovascular fitness
Renoir had to adapt his painting technique continuously; he couldn't hold his palette, so he let it balance on his knees. **His wheelchair was already of modern design, and he filled the back with cushions to prevent the development of bedsores.**
Podiatrist
- Provision of special footwear and insoles to improve foot and toe posture and function
- Foot care to prevent local infection

Dietician
- Maintain adequate nutrition but avoid obesity
- Food supplements claimed to help include Selenium and fish oils
Pharmacological treatment of

Therapeutic implications are no different in old age however greater risk of side affects
Salicylates, traditional NSAIDS or COX-2 inhibitors

A single large dose at night often helps to relieve early morning stiffness

Reduce pain and swelling but do not retard joint destruction so, when used alone, are not sufficient to treat RA.

Used for rapid symptom relief

Side effects include GI and renal toxicity
• Low dose oral prednisolone (<10mg/day) is highly effective for symptom relief

• Commonly used to bridge the time until DMARDs are effective

• Benefits versus adverse effects of
  
  osteoporosis
  
  hyperglycemia
  
  hypertension
  
  weight gain
- Calcium + vitamin D should be given and bisphosphonates considered
- Prednisolone should always be given in combination with a DMARD, the aim being to gradually decrease the dose and where possible discontinue it
Intra-articular steroids

Eg. triamcinolone

- Effects are sometimes dramatic however not long lasting
- Suitable for patients with disease flare up in only one or a few joints
- May be useful in helping a patient participate more fully in rehabilitation programmes
- Difference of opinion regarding maximum frequency – in general the same joint should not be injected more than once every 3 months because of possible steroid induced destructive changes

- Other risks include tendon rupture, osteonecrosis and sepsis

- Infection must first be considered and excluded
• Can retard or prevent disease progression and thus joint destruction and loss of function and may eliminate the need for other anti inflammatory or analgesic meds.

• Initiation of therapy should not be delayed beyond 3 months for any patient, with an established diagnosis of RA, who remains symptomatic despite adequate doses of NSAIDs (or in any patient with evidence of active disease)
• Rheumatologist input is often an essential component at this point as many factors influence the choice of DMARD eg cost, monitoring, compliance, adverse effects, comorbid conditions and severity and prognosis of the patients disease
Xenobiotics

- Methotrexate (MTX)
- Sulfasalazine (SSZ)
- Hydroxychloroquine
- Leflunomide

Biological agents

- Infliximab
- Etanercept
- Anakinra
MTX and SSZ are the most active in terms of frequency of remissions, time of onset and risk to benefit ratios.

MTX is the first line agent used for moderate to severe RA (+folic acid to ↓ haem. s/e and prevent in homocystine).
Combination therapy is considered if monotherapy fails.

All xenobiotics require careful monitoring due to their toxic side effects, however, adverse reactions typically became rare after the first 2-3 months and are usually reversible with cessation of the drugs or reduction of the doses.
<table>
<thead>
<tr>
<th>Adverse event</th>
<th>Treatments</th>
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<tbody>
<tr>
<td>Liver and bone marrow toxicity</td>
<td>MTX, SSZ, leflunomide, azathioprine, gold, D-penicillamine</td>
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<tr>
<td>Renal toxicity</td>
<td>Cyclosporin A, iv gold</td>
</tr>
<tr>
<td>Pneumonitis</td>
<td>MTX</td>
</tr>
<tr>
<td>Allergic skin rxns</td>
<td>Gold, SSZ</td>
</tr>
<tr>
<td>Autoimunity</td>
<td>SSZ</td>
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<tr>
<td>Infections</td>
<td>Azathioprine, Cyclosporin A</td>
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<tr>
<td>Occular toxicity</td>
<td>Antimalarials</td>
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</table>
In clinical trials 30-70% of patients achieve partial response according to the ACR’s disease activity score.

In practice, meds are manipulated to reduce disease activity as much as possible. Options are:

1. Increase the dose
2. Switch to a different DMARD
3. Initiate combination therapy
Biological agents
- Developed following recognition of TNF-alpha and IL-1 as central proinflammatory cytokines in RA.

- Biological agents bind TNF and prevent its interaction with its receptors.

- The first developed were infliximab and Etanercept.

- Expensive – not recommended until at least one xenobiotic DMARD (usually MTX) has been tried.
- Adverse RXNs: drug induced lupuslike syndromes, emergence of ANAs, infections (including TB), demyelinating disorders and BM suppression.

- Recent malignancies and demyelinating disorders are C/I and a thorough search must first be made for latent TB

- Anakinara, the newest biologic, is a IL-1 receptor blocker – in clinical trials, response in 40%
Surgery in RA
Indicated in patients who have unacceptable pain, loss of ROM, or limitation of function because of structural damage (not for cosmetic reasons).

Surgical procedures include:

- Carpel tunnel release
- Synovectomy
- Resection of the metatarsal heads
- Total joint arthroplasty
Timing of hip and knee replacements is important - Hips last longer and the prosthesis can be revised, this is less well developed for knees thus the procedure should be deferred until the patient is >70yrs
X-rays showing knee joints with advanced RA (top) and their total replacement with prosthetic joints (bottom).
Frontal and side views of cervical spine fusion to treat subluxation.
Equal gender distribution

More abrupt onset

Large proximal joints affected
More constitutional upset including elevated acute phase reactants – higher ESR at diagnosis

Extra-articular manifestations are less common

RF usually negative

Rheumatoid nodules less common
Co morbidities play a greater role in functional outcome

Atypical presentation and co morbidities can make diagnosis more difficult

Greater vigilance is needed to detect new co morbidities
Cognitive deficiency can adversely affect compliance with rehab and medications.

Side effects of treatment more common – medications require more careful monitoring.

Long term steroid use more common.