

### Rheumatoid Arthritis (RA): Definition

- Progressive, systemic, Autoimmune inflammation
- Often aggressive, devastating consequences
- Unknown etiology (auto immune, ?infection, smoking)
- Characterized by
  - Symmetric synovitis – Chronic Polyarthritis
  - Joint erosions, cartilage and bone destruction
  - Multisystem - extra-articular manifestations
  - Onset usually slow & insidious over months
  - In 15 to 20% may have rapid or acute
  - Aggressive management leads to good control

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### Rheumatoid Arthritis: Typical Involvement

- Wrist joints and MCP joints - very commonly involved
- Index and middle Metacarpophalangeal joints
- Proximal interphalangeal joints (PIP)
- Metacarpophalangeal joints (MCP)
- Metatarsophalangeal joints (MTP)
- Elbows, Shoulders
- Knees, Ankles, Hips. Lumbosacral not involved
- LS spine not involved. Only Atlanto-axial joint (C1- C2)
- Terminal interphalangeal (TIPS) joints are not involved

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### Rheumatoid Arthritis (RA): Epidemiology

- Prevalence of - 0.8% to 2.1% of the population
- Gender predilection ratio – Women: Men – 3:1
- Prevalence increases with age – Juvenile RA
- About 40-60% have severe disease – 3 fold ↑ mortality
- Median life expectancy is shortened by 3 to 7 years
- Onset mostly between ages of 35 – 40 years
- Genetic – HLA-DR1( $\beta 1^*0101, 0401$ ) – Class II HCA
- Exact etiology is not known

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### DAS28 (Disease Activity Scoring) for RA - EULAR

- Calculated using a formula that includes
  - Counts for tender and swollen joints – (28 joints)
  - General health by the patient (on a scale of 0 to 100)
  - A measurement of ESR or CRP
  - Score > 5.1 – High disease activity,
  - Score 5.1 to 3.2 – Moderate disease activity
  - Score < 3.2 – Low disease activity
  - Score < 2.6 – Being in Remission
  - Response to Rx. – ↓ of  $\geq 1.2$  – Good and < 0.6 – Poor
- European League Against Rheumatism (EULAR)

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### Rheumatoid Arthritis: Diagnosis - ACR Criteria

- Four or more of the following criteria must be present:
  - Morning stiffness > 1 hour
  - Arthritis of  $\geq 3$  joint areas of the possible 28 joints
  - Arthritis of hand joints (MCPs, PIPs, wrists)
  - Symmetric swelling (arthritis) – same joints on both sides
  - Serum rheumatoid factor – RA Factor (antibody to IgG)
  - Rheumatoid nodules
  - Radiographic changes
- First four criteria must be present for 6 weeks or more

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### Rheumatoid Factor (RA Factor)

- Developed by Eric Waller in 1937 – Rose Waller Test
- Agglutinating Abs - Latex particle agglutination assay
- Isotype specific enzyme immunoassays – New technique
- Antibodies to Fc portion of our own IgG - These Abs are IgM
- Positive in 5% of normal persons and only 70-80% of RA
- Low specificity (false +ves) & low sensitivity (false –ves.)
- It is not a screening tool – More a prognostic tool
- It is negative in 30% cases of RA – Sero negative RA
- RF are commonly seen other disease – see next slide

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### Anti-CCP Test in RA

- Antibodies to Cyclic Citrullinated Peptides (anti-CCP)
- Similar sensitivity for RA (70%)
- Specificity for RA (>95%) better than RA Factor
- In early polyarthritis anti-CCP are useful for Dx.
- Anti-CCP are associated with more severe disease
- They spell a poor prognosis and rapid progression
- They may be positive in asymptomatic patient years before the onset of symptoms

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### NSAID Class of Drugs

- |                      |                                  |
|----------------------|----------------------------------|
| <b>Non Selective</b> | <b>NSAIDs used as analgesics</b> |
| • Ibuprofen          | • Ketorolac (Ketanov)            |
| • Ketoprofen         | • Aspirin (NSAID)                |
| • Diclofenac         | <b>Selective COX-2</b>           |
| • Aceclofenac        | • Celecoxib, Etoricoxib          |
| • Piroxicam          | • Meloxicam                      |
| • Lornoxicam         | <b>Anlagesics</b>                |
| • Naproxen           | • Tramadol                       |
| • Indomethacin       | • Paracetamol                    |

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### Positive Rheumatoid Factor is seen in:

Disease	Frequency
Advanced Rheumatoid Arthritis	100%
Rheumatoid Arthritis (over all)	70%
Sjögren's syndrome	90%
Systemic Lupus Erythematosus (SLE)	30%
Sub acute bacterial endocarditis (SABE)	40%
Tuberculosis	15%
Old Age	20%
Normal healthy individuals	5%

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### Methotrexate (MTX)

- MTX is given 10 to 30 mg orally, IM, or SC per week
- It is DHF reductase inhibitor – Supplemental folic acid
- The clinical improvement takes one to two months
- Nausea, diarrhea; mouth ulcers; rash, alopecia; Abnormal LFT
- Rare: low WBC & platelets; pneumonitis; sepsis; liver disease; EBV related lymphoma;
- CBC, creatinine, and LFTs monthly for six months, then every one to two months; repeat AST or ALT in two to four weeks if initially elevated, and adjust dose as needed;
- Rapid onset (six to 10 weeks); tends to produce more sustained results over time than other DMARDs and lowers all-cause mortality;
- Can be used when cause of polyarthritis uncertain;
- Often combined with other DMARDs like Leflunomide, SSZ, HCQ

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### Rheumatoid Arthritis v/s Osteoarthritis

Feature	Rheumatoid Arthritis	Osteoarthritis
Pathology	Autoimmune	Degenerative
Age	Any age – usually 35+	Increases with age
Joints involved	Small joints MCP, PIP	Large joints, TIP
Spine (Axial)	C1-C2 - Subluxation	Lumbosacral
Extra articular	Many systemic effects	Few systemic effects
Course	Rapidly progressive	Slowly progressive
Disability	Highly disabling	Mild to moderate

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