

## Case Study

### Rheumatoid Arthritis

A.J. is a 32-year-old Asian wife and mother of three children, ages 2, 5, and 11. She comes to the outpatient clinic because she has had increasing joint pain and stiffness in her hands, wrists, and ankles for the past few months. She had experienced similar symptoms intermittently over a year or more, but the pain, and still does have become worse and more consistent lately. She reports that she had also felt tired and depressed. Her job at a large business firm and wires much typing at the computer, and she is found that her work performance is suffering because of the impairment in her hands. She says that work has been unusually stressful because of a change in administration and that is why she thinks she is tired and depressed.

You observed the finger joints of both of her hands are swollen and red, and that her left ankle is larger than her right. She has two nontender subcutaneous nodules on the dorsal aspect of her right 3rd and 4th fingers. The physician suspects that she could have rheumatoid arthritis and plans diagnostic testing and examination.

Indicate the diagnostic tests listed below that would be helpful in diagnosing rheumatoid arthritis:

- a. erythrocyte sedimentation rate
- b. complete blood count
- c. x-rays of the hands and feet
- d. antinuclear antibody titer
- e. bone scans of hands and feet
- f. synovial fluid analysis
- g. rheumatoid factor titers
- h. C-reactive protein levels

She tells you that her 67-year-old mother has arthritis in her hips and knees, but it did not start until she was about age 60. Her mother's doctor told her it happened because of the degeneration of her joints over time. You explain to her that the degenerative arthritis her mother has is different from Rheumatoid arthritis she is suspected as having. List the characteristics of osteoarthritis and rheumatoid arthritis in the appropriate box below:

Osteoarthritis	Rheumatoid Arthritis
<ul style="list-style-type: none"> <li>• Onset over 40 years of age</li> <li>• Equal incidence in men and women</li> <li>• Early involvement of proximal interphalangeal joints</li> <li>• Heberden's nodes</li> <li>• Usually overweight</li> <li>• Usually normal ESR</li> </ul>	<ul style="list-style-type: none"> <li>• Extraarticular manifestations</li> <li>• Anemia common</li> <li>• Early involvement of distal interphalangeal joints</li> <li>• Onset young and middle adult</li> <li>• Subcutaneous nodules</li> <li>• Joint effusion</li> <li>• Vasculitis</li> </ul>

You also explained to her that rheumatoid arthritis is believed to be an autoimmune disorder, a disease in which the body makes antibodies against its own cells, and when they interact, they damage tissues in the body. According to the autoimmune theory, rheumatoid arthritis is a result of the formation of abnormal:

- a. immunoglobulin G

Based on the results of the testing, the diagnosis of rheumatoid arthritis is confirmed and physician determines that she is in the second stage of the disease. You explained to her that rheumatoid arthritis has four stages and that the initiation of treatment at this time may help delay progression to other stages. Number the following descriptions of the pathophysiology of rheumatoid arthritis, according to the stage of the disease.

- \_3\_ Occlusion of the joint space by fibrous connective tissue
- \_1\_ Inflammation of the synovial membrane and excess production of synovial fluid; early osteoporosis
- \_4\_ Calcification of fibrous tissue in the joint leading to bony ankylosis
- \_2\_ Formation of inflammatory granulation tissue at the juncture of the synovium and cartilage

You anticipate that she will be started on drug therapy to relieve her symptoms and prevent further joint damage. Match the characteristics of the classifications of drugs used for rheumatoid arthritis:

#	Classification
1	Non-steroidal anti-inflammatory drugs
2	Disease modifying anti-rheumatic drugs
3	Immunosuppressants
4	Biologic agents
5	Corticosteroids
6	Salicylates

Characteristics	Class #
Used for initial treatment to lessen joint deformity	2
Specifically inhibit the tumor necrosis factor, and IL-1 involved in inflammation	4
Limited use because the risk of osteoporosis and avascular necrosis	5
Inhibit inflammation, but do not appear to alter natural course of rheumatoid arthritis	1
May be used locally with intra-articular injections	5
Inhibit DNA, RNA and protein synthesis	3
All drugs in this class may cause G.I. irritation and prolonged bleeding time	1
Includes drugs unrelated in action, except for ability to alter disease course	2
Two drugs of this class require patient administration subcutaneous injections	4

Match the following list of drugs with their classifications above:

Drug	Class #
Methotrexate (Rheumatrex)	2
Ibuprofen (Motrin, Advil)	1
Etanercept (Enbrel)	4
Aspirin, Salsalate (Disalcic)	6
Naproxen (Naprosyn, Anaprox)	1
Prednisone	5
Celecoxib (Celebrex)	1
Sulfasalazine (Azulfidine)	2
Anakinra (Kineret)	4
Azathioprine (Imuran)	3
Dexamethasone (Decadron)	5
Hydroxychloroquine (Plaquenil)	2
Rofecoxib (Vioxx)	1
Penicillamine	2
Infliximab (Remicaide)	4
Cyclophosphamide (Cytoxan)	3