Original Article

RHEUMATOID ARTHRITIS-PRESENTATION AND OUTCOME OF MANAGEMENT

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ABSTRACT

Objectives:

To study the presentation and outcome of management of rheumatoid arthritis at Madina Teaching Hospital and Independent Medical College Hospital, Faisalabad.

Patients and Methods:

A prospective study was done. One hundred and forty four patients of rheumatoid arthritis attending the Out Patient Department of Orthopedic Surgery in Madina Teaching Hospital Faisalabad, from January 2008 to June 2009, were analyzed. Every patient was treated with DMARDs along with NSAIDs and short course of Steroids. All the patients were followed for one year with monthly visits. No patient developed any new complication during treatment.

Results:

In 124 patients with Rheumatoid Arthritis there were 102 female and 22 male patients. The patient ages ranged from 15 to 70 years with mean age 28 years. Female to male ratio was almost 5:1. Most common presenting symptom was polyarthralgia with involvement of hand joints. Rheumatoid Factor was positive in 76% patients.

Conclusion:

Rheumatoid Arthritis is one of the common diseases, seen in the Out Patient Department of Orthopedic Surgery. Treatment with DMARDs can halt progression of the disease and help against the development of complications.

INTRODUCTION

Rheumatoid arthritis is a chronic, systemic inflammatory disorder that may affect many tissues and organs, but principally attacks the joints producing an inflammatory synovitis that often progresses to destruction of the articular cartilage and ankylosis of the joints. Rheumatoid arthritis can also produce diffuse inflammation in the lungs, pericardium, pleura, and sclera, and also nodular lesions, most common in subcutaneous tissue under the skin. The incidence of RA is in the region of 3 cases per 10,000 populations per annum. Onset is uncommon under the age of 15 and from then on the incidence rises with age until the age of 80. The prevalence rate is 1%, with women affected three to five times as often as men. It is 4 times more common in smokers than non-smokers.[4] Some Native American groups have higher prevalence rates (5-6%) and people from the Caribbean region have lower prevalence rates. First-degree relative's prevalence rate is 2-3% and disease genetic concordance in monozygotic twins is approximately 15-20%.[7]

About 1% of the world's population is afflicted by rheumatoid arthritis, women three times more often than men. Onset is most frequent between the ages of 40 and 50, but people of

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any age can be affected. It can be a disabling and painful condition, which can lead to substantial loss of functioning and mobility.[2] While rheumatoid arthritis primarily affects joints, problems involving other organs of the body are known to occur. Extra-articular ("outside the joints") manifestations other than anemia (which is very common) are clinically evident in about 15-25% of individuals with rheumatoid arthritis.[1] It can be difficult to determine whether disease manifestations are directly caused by the rheumatoid process itself, or from side effects of the medications commonly used to treat it– for example, lung fibrosis from methotrexate or osteoporosis from corticosteroids.[7] With time RA nearly always affects multiple joints (it is a polyarthritis), most commonly small joints of the hands, feet and cervical spine, but larger joints like the shoulder and knee can also be involved. Rheumatoid arthritis typically manifests with signs of inflammation, with the affected joints being swollen, warm, painful and stiff, particularly early in the morning on waking or following prolonged inactivity.[9] Increased stiffness early in the morning is often a prominent feature of the disease and may last for more than an hour. Rheumatoid arthritis typically manifests with signs of inflammation, with the affected joints being swollen, warm, painful and stiff, particularly early in the morning on waking or following prolonged inactivity. Increased stiffness early in the morning is often a prominent feature of the disease and may last for more than an hour. In RA, the joints are often affected in a fairly symmetrical fashion, although this is not specific, and the initial presentation may be asymmetrical. The fingers may suffer from almost any deformity depending on which joints are most involved. Deformities include ulnar deviation, boutonniere deformity, swan neck deformity and "Z-thumb" The rheumatoid nodule, which is often subcutaneous, is the feature most characteristic of rheumatoid arthritis. Fibrosis of the lungs is a recognized response to rheumatoid disease. Renal amyloidosis can occur as a consequence of chronic inflammation. People with rheumatoid arthritis are more prone to atherosclerosis, and risk of myocardial infarction (heart attack) and stroke is markedly increased. The eye is directly affected in the form of episcleritis which when severe can very rarely progress to perforating scleromalacia. Rather more common is the indirect effect of keratoconjunctivitis sicca, It is diagnosed chiefly on symptoms and signs, but also with blood tests (especially a test called rheumatoid factor) and X-rays.[9,10,12] A negative RF does not rule out RA; rather, the arthritis is called seronegative. This is the case in about 15% of patients. Because of this low specificity, new serological test have been developed, which tests for the presence of so called anti-citrullinated protein antibodies (ACPAs). Like RF, these tests are positive in only a proportion (67%) of all RA cases, but are rarely positive if RA is not present, giving it a specificity of around 95%. X-ray may demonstrate juxta-articular osteopenia, soft tissue swelling and loss of joint space. As the disease advances, there may be bony erosions and sublaxation. Diagnosis and long-term management are typically performed by a rheumatologist, an expert in the diseases of joints and connective tissues.

Various treatments are available. Non-pharmacological treatment includes physical therapy, orthoses and occupational therapy. Analgesia (painkillers) and anti-inflammatory drugs, including steroids, are used to suppress the symptoms, while disease-modifying antirheumatic drugs (DMARDs) are often required to inhibit or halt the underlying immune process and prevent long-term damage.[11,13,15] In recent times, the newer group of biologics has increased treatment options.

The limited studies of patients with rheumatoid arthritis (RA) suggest that the lack of access to specialty services is associated with suboptimal treatment[7,19] and that patients who do not receive disease modifying anti rheumatic drugs (DMARD) are at increased risk of joint damage.[9] A study evaluating very early RA therapy versus later RA therapy also found that those treated earlier did better with respect to disease activity, joint destruction, and functional outcome.[10] This finding is consistent with current evidence that supports a more aggressive approach, with earlier use of DMARD[11,13] because it leads to improve disease outcome, including retardation of radiological damage and increased work productivity.[10,13,14,15,16,17]

The name is based on the term "rheumatic fever", an illness which includes joint pain and

is derived from the Greek word rheumatos ("flowing"). The suffix -oid ("resembling") gives the translation as joint inflammation that resembles rheumatic fever. The first recognized description of rheumatoid arthritis was made in 1800 by Dr Augustin Jacob Landré-Beauvais (1772-1840) of Paris.

In 1987 ACR criteria were applied based on findings and symptoms up to when the certificate was written, although the criteria were developed to distinguish established RA from other rheumatic conditions and their use in classifying cases with polyarthritis early in the disease has been criticized.[2] Smoking is the early environmental risk factor that has been firmly verified epidemiologically for RA.[18] Infect, it is the best known contributing factor for RF-positive RA.[4]

Sufficient level of vitamin-D may also protect from autoimmune reaction. In a prospective cohort study the higher intake of vitamin-D was inversely associated with RA.[20] Denmark has the higher prevalence for smoking in the Nordic countries, which may have influenced the high incidence figures of RA at the turn of the century. Seafood in Norway may have protected the population.[21]

PATIENTS AND METHODS

Patients attending the Out Patient Department of Orthopedic Surgery at Madina Teaching Hospital Faisalabad from January 2008 to October 2009 were subjected to a prospective descriptive study and were followed for one year. All patients of rheumatoid arthritis were included in the study. Patients below 15 years were excluded from study. Detailed history was taken from the patient and after thorough clinical examination, relevant investigations were done and the data was shifted to a Performa. The American College of Rheumatology criteria were used for the classification of rheumatoid arthritis:

1. Morning stiffness of >1 hour for at least 6 weeks.
2. Arthritis and soft-tissue swelling of >3 of 14 joints/joint groups, present for at least 6 weeks.
3. Arthritis of hand joints, present for at least 6 weeks.
4. Symmetric arthritis, present for at least 6 weeks.
5. Subcutaneous nodules in specific places.
6. Rheumatoid factor at a level above the 95th percentile.
7. Radiological changes suggestive of joint erosion or peri-articular osteopenia.

At least four criteria have to be met for classification as RA.

After diagnosis every patient was put on treatment which included DMARDs, NSAIDs and short course of steroids. Patients were followed up on monthly basis up to one year for the development of complications of the disease and possible side effects of drugs. Relevant investigations were done in the follow up period to see the progress of the disease and side effects of drugs.

The data was analyzed by using statistical program SPSS.

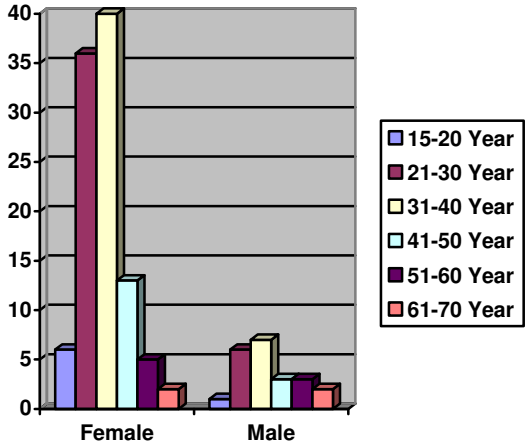
RESULTS

In our study 124 patients of rheumatoid arthritis participated of whom 102 were females and 22 were male patients. The age of onset was between 15 and 70 years (most patients were in 3rd and 4th decade of life).

Table 1. Age groups of patients

Age group	Female patients [n=102]	Male patients [n=22]
A=15-20 years	06	01
B=21-30 years	36	06
C=31-40 years	40	07
D=41-50 years	13	03
E=51-60 years	05	03
F=61-70 years	02	02

Graphical presentation of different age groups



Most common presentation was polyarthralgia which was the mode of presentation in 110 patients with small joints of hands involved in most of the patients. Ten patients presented mainly with deformities involving hands, feet or knee joints in descending order. Remaining four patients presented with involvement of only one or two joints.

The American College of Rheumatology criteria was used for the classification of rheumatoid arthritis. At least four criteria were met before labeling any patient as case of Rheumatoid Arthritis.

After proper thorough history, complete examination and relevant investigations, the patients were diagnosed and treatment was started. Every patient was put on DMARDs, along with NSAIDs and a short course of steroids, which were tapered off as early as possible but not beyond three months. Response to the treatment was checked using the clinical assessment and laboratory investigations on monthly basis. Patients were started with either Leflunamide or Methotrexate. According to response of the patient only one DMARD [either Leflunamide or Methotrexate] was continued which was the case in 110 patients. Both drugs were used in combination if there was no satisfactory response after one month which was done in 22 patients. Two patients were put on a combination of three DMARDs, adding Hydroxychloroquin along with other two drugs.

Response to single drug was relatively poor in female patients [86% responding] as

Table 2. Frequency of ACR criteria

ACR Criterion	Female patients [n=102]	Male patients [n=22]	Total patients [n=124]
Morning Stiffness	96	21	117 [94.35%]
Polyarthralgia	100	20	120 [96.77%]
Arthritis of hands	98	20	118 [95.16%]
Symmetrical involvement	95	20	115 [92.74%]
Subcutaneous nodules	01	00	01 [0.80%]
R.A-Factor	76	18	94 [75.80%]
Radiological changes	60	08	68 [54.84%]

Graphical presentation of ACR criteria

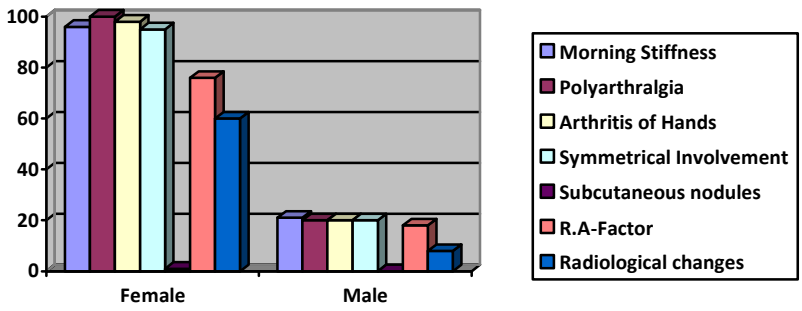


Table 3. Response to DMARDs

Drugs	Female patients [n=102]	Male patients [n=22]	Total patients [n=124]
Leflunamide alone	45	10	55 [44.35%]
Methotrexate alone	43	12	55 [44.35%]
Combination of both	22	00	22 [17.74%]
Combination of three drugs	02	00	02 [1.61%]

compared to male patients [100% responding to single drug]. In five patients we have to give intra-articular injection of steroids to relieve knee pain.

DISCUSSION

RA is one of the commonest orthopedic problems encountered in Out Patient Department of Orthopedic Surgery and it accounts for majority of disabilities caused by any form of arthritis. As shown in various studies disease is more common in females as compared to males. In our study there are 82% females and 18% males with female to male ratio of almost 5:1. We have seen in the study that 30.6% patients were in 3rd decade and 38% in 4th decade of their lives. A study on RA conducted at Bahawal Victoria Hospital, Bahawalpur has shown that most commonly affected age group is 3rd and 4th decade of life. Same observation has been seen in many international studies.

As regards clinical presentation, we have seen that most of the patients presented with polyarthralgia accounting for 96.77% of cases with involvement of hand joints most commonly (98.33% of those presenting with polyarthralgia). Only 4 patients presented with involvement of single joint were also diagnosed to have RA and were included in study group.

We used ACR criteria for diagnosis of RA in our study group. Study confirmed the prevalence of RA-factor in 76.6% of patients which is the same observation as shown in literature and some other studies. Morning stiffness is a very reliable criterion for diagnosis of RA and we found it in more than 95% of patients. It has been observed that patients with longer duration of symptoms had morning stiffness for longer time. During treatment it was the earliest symptom to improve.

Radiological changes were noted in more than half of the patients at presentation. As it takes years to develop radiological changes in patients with RA. Many of the patients presenting to us were previously treated by quacks or GPs and were neither investigated nor diagnosed properly and did not receive proper treatment with DMARDs. This is the possible reason for radiological changes in such a great proportion of patients at presentation. Only one patient amongst 124 had rheumatoid nodules at presentation.

After diagnosis we treated every patient with DMARDs, Leflunamide and Methotrexate either alone or in combination. We have seen that treatment with DMARDs improves the symptoms very early and delays the development of radiological changes and deformities. None of our patients had progression of radiological changes or deformities during one year follow up period. This observation has been shown in many other studies. We observed only few side effects of DMARDs, most common being nausea, vomiting, diarrhea, abdominal pain and elevation of SGPT.

CONCLUSION

RA is one of the common diseases with which patients present to Orthopedic OPD. Every patient presenting with polyarthralgia should be investigated properly to rule out RA which is a morbid disease. Treatment with DMARDs can halt progression of the disease and help against the development of complication with only few side effects caused by these drugs.

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