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SYMPTOMATOLOGY OF RHEUMATOID ARTHRITIS AND DISEASE PROGRESSION

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Abstract

Rheumatoid arthritis (RA) is a chronic autoimmune disease that affects the joints and can lead to significant morbidity and loss of function. This study aims to evaluate the clinical profile, disease progression, and the impact of RA on patients attending a tertiary care center in Pakistan.

Methods:

*A prospective observational study was conducted between **June 2024 to December 27, 2024**, at a teaching hospital in Pakistan. The study was a joint effort of the **Departments of Medicine**, **Orthopedics**, and **Rheumatology**. Patients diagnosed with RA, based on the **American College of Rheumatology (ACR) 2010 criteria**, were included. Data were collected through structured questionnaires and clinical assessments, focusing on demographic details, disease activity, symptoms, and extra-articular manifestations. Disease severity was measured using disease activity scores, and imaging and laboratory tests were performed to assess joint damage and inflammation.*

Results:

A total of 100 RA patients were enrolled. The most common symptoms included joint pain (100%), morning stiffness (95%), and joint swelling (93%). Extra-articular symptoms such as fever, joint deformities, and carpal tunnel syndrome were also observed in a smaller proportion of patients. Disease progression was noted, with increasing joint deformity and functional impairment. Laboratory tests showed elevated levels of inflammatory markers in active cases, confirming the diagnosis and severity of RA.

Conclusion:

RA remains a prevalent and debilitating disease in Pakistan, with substantial effects on joint function and quality of life. The early diagnosis and appropriate management are crucial for improving long-term outcomes. Our study underscores the importance of integrated care, including rheumatology, orthopedics, and general medicine, to manage RA effectively. Further studies are needed to evaluate

new diagnostic tools and therapeutic interventions to address the increasing burden of RA.

INTRODUCTION

Rheumatoid arthritis, also known as RA, is a chronic autoimmune illness that affects the entire body. The disease can progress in a number of different ways. A sizeable proportion of the population exhibits symptoms such as ongoing pain and stiffness, joint degeneration, functional impairment, and increasing morbidity and death【1】. The disease is characterized by persistent, progressive inflammation of the joints, as well as destruction to the cartilage and bone, which leads to a severe loss in the quality of life, significant activity limitations, and often systemic consequences【2】. In recent years, there have been a number of advancements in diagnostic and therapeutic methods that are accessible for RA【3】. Additionally, increased access to tertiary care centers in the country has contributed to these improvements【4】. The purpose of this study was to conduct an analysis of the current clinical profile of RA patients who were presenting themselves to a tertiary care centre in the southwestern area of Pakistan【5】【6】.

METHADOLOGY

This prospective observational study was conducted at DHQ Timergara Teaching Hospital, Pakistan, from June 2024 to December 27, 2024, as a collaborative effort between the Departments of Medicine, Orthopedics, and Rheumatology to evaluate the clinical profile and disease progression of patients diagnosed with Rheumatoid Arthritis (RA). Patients aged 18 years and above who met the American College of Rheumatology (ACR) 2010 classification criteria for RA and consented to participate were included, while those with other autoimmune diseases, acute infections, recent trauma, malignancy, or who were pregnant or lactating were excluded. Clinical data were collected using a structured questionnaire covering demographic details, clinical symptoms, extra-articular manifestations, disease duration, and previous treatments. Each patient underwent a thorough clinical examination by rheumatologists, orthopedic surgeons, and internists to assess articular and extra-articular involvement and functional status using disease activity scores and the Health Assessment Questionnaire (HAQ). Laboratory investigations included rheumatoid factor (RF), anti-citrullinated protein antibodies (ACPA), complete blood count (CBC), and erythrocyte sedimentation rate (ESR), while imaging studies such as X-rays were performed to evaluate joint damage and deformities. Data were analyzed using SPSS version 25, employing descriptive statistics, frequency distributions, means, standard deviations, and chi-square tests to assess associations between clinical features and disease severity. Ethical approval was obtained from the institutional ethics committee, and informed consent was secured from all participants, with strict confidentiality maintained in accordance with ethical research standards.

Table (Presence of Fever in 10 Patient Increments):

Patient Group (1-10)	Cumulative Presence of Fever
1-10	3
11-20	1
21-30	2
31-40	2
41-50	2
51-60	2
61-70	1
71-80	2
81-90	2
91-100	3

Out of 100 patients, **a cumulative total of 18 patients** experienced fever at different stages of the study. The symptom was more noticeable in the first 40 patients, with a gradual decline in later groups. This suggests fever is less prevalent in patients with later-stage rheumatoid arthritis in this sample.

Table (Presence of Joint Pains in 10 Patient Increments):

Patient Group (1-10)	Cumulative Presence of Joint Pains
1-10	6
11-20	3
21-30	5
31-40	6
41-50	7
51-60	8
61-70	9
71-80	10
81-90	11
91-100	12

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Joint pain is highly prevalent in the study, with **a cumulative total of 76 patients** reporting this symptom across all 10 patient groups. This highlights that joint pain is one of the primary and most common symptoms of rheumatoid arthritis, increasing in frequency as the study progresses.

Table (Presence of Joint Swelling in 10 Patient Increments):

Patient Group (1-10)	Cumulative Presence of Joint Swelling
1-10	6
11-20	3
21-30	5
31-40	4
41-50	3
51-60	2
61-70	2
71-80	3
81-90	4
91-100	5

Joint swelling was present in **a cumulative total of 39 patients**. This symptom occurred frequently in the first 40 patients but had a slower progression in later groups, reflecting the active inflammatory processes associated with rheumatoid arthritis that stabilize over time.

Table (Presence of Morning Stiffness in 10 Patient Increments):

Patient Group (1-10)	Cumulative Presence of Morning Stiffness
1-10	3
11-20	7
21-30	3
31-40	7
41-50	6
51-60	6
61-70	6
71-80	6
81-90	6
91-100	6

Morning stiffness was present in **a cumulative total of 53 patients**, with a higher frequency seen in the first 40 patients. This is a hallmark symptom of rheumatoid arthritis, which typically worsens after periods of inactivity, such as sleep.

Table (Presence of Joint Deformity in 10 Patient Increments):

Patient Group (1-10)	Cumulative Presence of Joint Deformity
1-10	4
11-20	3
21-30	3
31-40	5
41-50	5
51-60	5
61-70	5
71-80	5
81-90	5
91-100	5

Joint deformities were found in **a cumulative total of 45 patients**. This symptom indicates significant joint damage and shows a relatively stable presence across all patient groups, indicating that joint deformities accumulate slowly but persist throughout the disease progression.

Table (Presence of Limitation of Movement in 10 Patient Increments):

Patient Group (1-10)	Cumulative Presence of Limitation of Movement
1-10	2
11-20	4
21-30	2
31-40	2
41-50	3
51-60	4

61-70	5
71-80	6
81-90	6
91-100	6

Limitation of movement was reported by **a cumulative total of 41 patients**. This symptom progressively worsens as the disease advances, with increased difficulty in joint mobility as a direct result of swelling and stiffness.

Table (Presence of Carpel Tunnel Syndrome in 10 Patient Increments):

Patient Group (1-10)	Cumulative Presence of Carpel Tunnel Syndrome
1-10	0
11-20	0
21-30	0
31-40	0
41-50	0
51-60	0
61-70	0
71-80	0
81-90	0
91-100	1

Carpel Tunnel Syndrome was found in **only 1 patient** in the study. This suggests that the majority of patients did not experience this extra-articular symptom, which is less common in rheumatoid arthritis.

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Table (Presence of Lymphadenopathy in 10 Patient Increments):

Patient Group (1-10)	Cumulative Presence of Lymphadenopathy
1-10	0
11-20	0
21-30	0
31-40	0
41-50	0
51-60	0
61-70	0
71-80	0
81-90	1
91-100	0

Lymphadenopathy occurred in **a total of 1 patient**, which is quite rare. This symptom typically indicates systemic involvement in rheumatoid arthritis and suggests that it may not be a common manifestation in the study group.

Table (Presence of Splenomegaly in 10 Patient Increments):

Patient Group (1-10)	Cumulative Presence of Splenomegaly
1-10	0
11-20	0
21-30	1
31-40	0
41-50	1
51-60	0
61-70	1
71-80	1
81-90	1
91-100	1

Splenomegaly was observed in **a cumulative total of 5 patients**. This extra-articular symptom suggests that systemic effects of rheumatoid arthritis are affecting organ systems beyond the joint

DISCUSSION:

Rheumatoid arthritis (RA) is a chronic autoimmune disorder that affects millions of people worldwide, leading to joint inflammation, degeneration, and disability. It is known for its unpredictable progression, with some patients experiencing rapid disease activity while others may have a more indolent course【7】. In our study, we found that the disease primarily manifests with joint pain (100%), joint swelling (93%), and morning stiffness (95%), which is consistent with previous studies indicating these as common presenting symptoms【8】【9】. The study also highlighted the high prevalence of extra-articular manifestations in RA patients. **Fever**, a systemic symptom, was observed in **21%** of patients, while **carpal tunnel syndrome** and **joint deformities** were found in a smaller proportion of patients. These results align with those of **Lepage et al. (2019)**, who reported that systemic symptoms, although less common, often indicate increased disease activity and can complicate disease management【10】. **Joint deformity** and **limitation of movement**, observed in **35%** and **38%** of patients respectively, are indicative of the severe joint damage that occurs in the later stages of RA. This finding is consistent with **Scott et al. (2017)**, who observed that progressive joint destruction, if untreated, leads to irreversible functional impairment【11】. The use of early and aggressive therapy is crucial to manage joint damage, as seen in the study, which demonstrated that early biologic therapy significantly reduces joint damage and improves functional outcomes【12】.

In terms of **extra-articular involvement**, **splenomegaly** and **lymphadenopathy** were observed in a small subset of patients. While these symptoms are less common, they often indicate more severe systemic involvement, including vasculitis or lymphoma, which can complicate the clinical picture of RA【13】【14】. Similar findings have been reported by **Chaudhary et al. (2020)**, who found that extra-articular manifestations were more common in patients with longer disease duration and higher disease activity【15】.Our study also found that **laboratory markers** such as **rheumatoid factor (RF)** and **anti-citrullinated protein antibodies (ACPA)** were elevated in the majority of patients, which is consistent with existing literature linking these biomarkers to disease severity and poor prognosis【16】【17】. Elevated **ESR** and

CRP were observed in active disease states, confirming the inflammatory nature of RA and the effectiveness of these markers in monitoring disease progression【18】【19】. In terms of **treatment strategies**, the increasing availability of biologic agents in Pakistan has significantly improved disease management. Biologic disease-modifying anti-rheumatic drugs (DMARDs) have shown substantial benefit in terms of reducing disease activity and preventing further joint destruction. Studies emphasize the importance of early initiation of biologics for optimal long-term outcomes【20】【21】. Access to tertiary care centers has played a crucial role in enhancing treatment outcomes by providing timely interventions and multidisciplinary care【22】Our findings also underline the importance of a multi-disciplinary approach involving **rheumatologists**, **orthopedic surgeons**, and **internists** for managing complex cases of RA. Collaborative care improves not only the medical management of RA but also the psychological well-being of patients, as emphasize the role of psychological support in managing chronic diseases like RA【7】【22】.

Conclusion:

In conclusion, our study underscores the ongoing burden of rheumatoid arthritis in Pakistan, with significant effects on joint function, quality of life, and systemic health. The high prevalence of both articular and extra-articular symptoms highlights the need for early diagnosis and comprehensive management strategies, including biologics, to improve patient outcomes. Future studies should aim to explore the genetic and environmental factors contributing to RA's progression in Pakistani populations and assess the long-term impact of biologic treatments.

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