# Demographic, clinical, and serological features of Iraqi patients with rheumatoid arthritis: evaluation of 470 patients

Aim: To evaluate the demographic, clinical, serological, and radiological characteristics of patients with Rheumatoid Arthritis (RA).

Methods: This was a cross-sectional, descriptive study conducted on a population of patients with RA in the rheumatology outpatient clinic in the three main teaching hospitals in Basrah province between January 2018 and July 2020. Four hundred seventy patients with RA were recruited for this study. All patients were examined and diagnosed by a rheumatologist. Laboratory and radiology tests were also performed for all patients.

Results: Three hundred eighty-five (81.9%) women and 85 (18.1%) men with RA were enrolled for the study. The mean age, disease duration, and body mass index were 49.9 ± 11.9, 14.7 ± 6.8 years, and 27.1 ± 4.7, respectively. 322(68.5%) of the patients were have insidious disease onsets. There were 425 (96.2%) patients on Methotrexate (MTX), 247(52.6%), and 180(38.3%) patients on etanercept and prednisolone, respectively. The wrist was the most frequently involved joint, and the hip was the least frequently affected joint (100% and 5.1%), respectively. Anemia was the most extra-articular manifestation in our sample in a ratio of 18.7%. Anti-CCP and rheumatoid factor were present in 81.9% and 77%, respectively. Ulnar deviation was complicated 19.4% of the patients. Diabetes mellitus was the most abundant comorbidity presented in 43.6% of patients. One hundred sixty (34.0%) of the patients were completed their secondary education.

Conclusion: Clinical and serological features of rheumatoid arthritis in Basrah province were similar to those found in some national and international studies. We observed higher female preponderance.

Keywords: ademographics ● clinical ● iraqi patients ● rheumatoid arthritis

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## Introduction

Rheumatoid arthritis (RA) is a chronic systemic autoimmune disease characterized by chronic inflammation, progressive deterioration of joint function, increased comorbidity, and excess mortality [1]. The disease onset may be variable; symmetrical small joints involvement is the usual disease manifestation. The patient presented with joint pain, early morning stiffness, movement limitation for more than 1 hour. Although RA frequently involves the Metacarpophalangeal(MCP) joints, the Proximal Interphalangeal(PIP) joints, the wrists, the Metatarsophalangeal (MTP) joints, and the knee joints, it may also involve other joints [2,3]. RA prevalence varies broadly; studies in different countries in Europe have shown a prevalence rate ranging from 0.5% to 1.0% [4]. Although, not directly life-threatening, it causes a reduction in the patient quality of life and severe economic damages to society [5]. It is more prevalent in women (female/man ratio of 2:1), and its incidence increases with age [6]. Before the era of Disease-Modifying Antirheumatic Drugs (DMARDs), RA can cause severe, destructive arthritis and systemic involvement, resulting in high morbidity,mortality rates, functional disability, and reduced quality of life [7]. The incidence, severity, and outcome of the disease

show variability between different ethnical-origin groups [8-10]. Various factors play roles in this variability, such as the different socioeconomic and development levels, genetic and environmental factors also play a role. In developing countries, patients with RA are known to have a severe clinical course and a poor prognosis due to limited access to the physician, specialist, and/ or drugs [2,3]. Different manifestations and outcomes enable the development of different targeted treatment modalities. To the best of our knowledge, the prevalence of RA in Iraq was only estimated in 1978 by Al- Rawi Z S et al.[11]. The demographic characteristics, clinical course, comorbidity, and the outcome of RA in our country not addressed in the literature, particularly in Basrah province population with different ethnic and socioeconomic backgrounds; therefore, we conducted this study to meet this necessity.

## Materials and Methods

Four hundred seventy patients, 385 (81.9%) females and 85(18.1%) males with RA were diagnosed according to the ACR classification criteria [12] in the rheumatology outpatient clinics in the three main teaching hospitals in Basrah province between January 2018 and July 2020. were enrolled for this cross-sectional study. Diagnosis, treatment, and follow-up of all patients were performed in these three clinics. Data collection was done through an interview with the patients using a special questionnaire developed by the researchers. Clinical history and physical examination of all patients were evaluated by a single investigator in each clinic. The following parameters were recorded in all patients during the first examination; demographic data, clinical findings, disease activity (number of sensitive/swollen joints among 28 joints), drug history, presence of articular and extra-articular symptoms, presence of concomitant comorbid diseases, laboratory parameters including complete blood count, CRP, ESR, RF, anti-CCP antibody, and radiological changes detected on radiography by a rheumatologist and a radiologist. Extra-articular symptoms were described as follows: anemia (haemoglobin <11 g/dl), rheumatoid nodules were described as the presence of subcutaneous nodules >5 mm on extensor surfaces of extremities, carpal tunnel syndrome was the presence of subjective complaints in combination with NCV findings, sicca symptoms were the presence of dry mouth and eyes, Raynauds phenomenon was the presence of cold extremities on exposure to cold or stress,pulmonary involvement was the presence of pleuritis, interstitial changes, Felty syndrome was the presence of leucopenia and splenomegaly not attributable to another reason.

Normal ranges of laboratory parameters were described as follows: CRP (normal 0–5), ESR (normal 25 mm/h by Westergren method), RF (normal <5 by nephelometry method), anti-CCP (normal <20 by ELISA method).

### Ethical considerations

Verbal consent was obtained from all participants prior to their involvement. The study was conducted in accordance with the principles of the Declaration of Helsinki.

Statistical analysis: the data were analyzed using an excel sheet and SPSS version (23). Presentation of data as frequency and proportion through tables were used.

## Results

Table 1 shows the 470 patients enrolled in the study, 385 (81.9%) women and 85 (18.1%) men. The mean age, disease duration, and body mass index were 49.9 ± 11.9, 14.7 ± 6.8 years, and 27.1 ± 4.7, respectively. 322 (68.5%) patients were presented with insidious onset, whereas 148(31.5%) patients were presented with acute onset. Eighty-two (17.4%) patients were smokers, and 95(20.2%) have a family history of RA. Methotrexate and etanercept were the most conventional Disease Modifying Anti Rheumatic Drug (DMARD) and biologic drugs used by our patient sample in percentages of 96.2% and 52.6%, respectively. Wrist, metacarpophalangeal, proximal interphalangeal, and the knee joints were the most affected joints in the study population in percentages of 100%, 97.7%, 96.2%, and 80.9%, respectively, whereas the hip was the least affected joint in a percentage of 5.1% as shown in Table 2. Anemia, carpal tunnel syndrome and, rheumatoid nodule were the most extra-articular features found in the study population in percentages of 38.2%, 29.8%, and 15.1%, respectively. In contrast, Felty syndrome was the least occurred feature in a ratio of 1.3%, and 10.6% of the study population have lung involvement. Seventy-eight (16.6%) of patients had erosions on a plain X-ray film. Rheumatoid factor and anti-CCP present in 81.9% and 77.0%, respectively, as shown in Table 3. Ulnar deviation was present in 19.4% of patients, whereas Z deformity was present in 15.1% of them, as shown in Table 4. Diabetes mellitus, hypertension, and dyslipidemia were the most abundant comorbidities in the study population in percentages of 43.6%, 42.3%, and 40.4%, respectively. In contrast, ischemic heart disease was the least comorbidity, in a ratio of 4.5%, as shown in Table 5. Most patients in our study population were in completed their primary education in a percentage of 54.5%, while patients who

| Table 1: Demographic and disease characteristics distributions of patients with rheumatoid arthritis. | |
|---|---|
| **Characteristic** | |
| Total | 470(100%) |
| Males (No. %) | 85(18.1%) |
| Females (No. %) | 385(81.9%) |
| Mean age ±SD (years) | 49.9 ±11.9 |
| Age groups(years) | |
| 20-39 (No. %) | 90(19.1%) |
| 40-59 (No. %) | 268(57%) |
| ≥60 (No. %) | 112(23.8%) |
| Mean age of onset±SD (years) | 41±2.1 |
| Disease onset | |
| Acute (No. %) | 148(31.5%) |
| Insidious (No. %) | 322(68.5%) |
| Mean disease duration ± SD (years) | 14.7±6.8 |
| Body mass index ( mean ±SD ) | 27.1±4.7 |
| Smoking (No. %) | 82(17.4%) |
| Family history (No. %) | 95(20.2%) |
| Medications | |
| Methotrexate | 425(96.2%) |
| Antimalarial | 190(40.4%) |
| sulfasalazine | 54(11.5%) |
| Leflunomide | 13(2.8%) |
| prednisolon | 180(38.3%) |
| Etanercept | 247(52.6%) |
| Remicade | 84(17.8%) |
| Humera | 24(5.1) |
| Remsima | 3(0.6%) |
| Rituximab | 6(1.3%) |

| Table 2: Frequency of joint involvement in patients with rheumatoid arthritis | | |
|---|---|---|
| **Joint involved** | **No.** | **%** |
| Wrist | 470 | 100 |
| PIP | 452 | 96.2 |
| MCP | 459 | 97.7 |
| Shoulder | 174 | 37 |
| knee | 380 | 80.9 |
| hip | 24 | 5.1 |
| Ankle | 277 | 58.9 |
| Cervical spine | 185 | 39.4 |
| elbow | 233 | 49.6 |
| foot | 251 | 53.4 |
| PIP: Proximal Interphalangeal; MCP: Metacarpophalangeal | | |

| Table 3: Extra-articular clinical, radiological and serological features of rheumatoid arthritis patients. | | |
|---|---|---|
| **Mean feature** | **No.** | **%** |
| Anaemia | 180 | 38.2 |
| Rheumatoid nodule | 71 | 15.1 |
| CTS | 140 | 29.8 |
| Sicca | 30 | 6.3 |
| Raynauds phenomenon | 20 | 4.2 |
| Lung involvement | 50 | 10.6 |
| pericarditis | 21 | 4.5 |
| Felty syndrome | 6 | 1.3 |
| Sjogren | 20 | 4.3 |
| Erosion | 78 | 16.6 |
| Rheumatoid factor | 385 | 81.9 |
| Anti CCP | 362 | 77 |
| CTS: Carpal Tunnel Syndrome;Anti CCP: Anti Cyclic Citrullinated Peptide | | |

| Table 4: Frequency of joint deformities in patients with rheumatoid arthritis | | |
|---|---|---|
| **Joint deformity** | **No.** | **%** |
| Ulnar deviation | 91 | 19.4 |
| Swan neck | 84 | 17.9 |
| Z deformity | 71 | 15.1 |
| Boutonnier | 74 | 15.7 |

| Table 5: Frequency of comorbidities in patients with rheumatoid arthritis. | | |
|---|---|---|
| **Comorbidity** | **No.** | **%** |
| Hypertension | 199 | 42.3 |
| Diabetes | 205 | 43.6 |
| Ischemic heart disease | 21 | 4.5 |
| Thyroid disorder | 73 | 15.5 |
| Dyslipidemia | 190 | 40.4 |
| Osteoporosis | 78 | 16.6 |

| Table 6: Distribution of rheumatoid arthritis according to the level of education. | | |
|---|---|---|
| **Education level** | **No.** | **%** |
| Illiteracy/incomplete primary education | 214 | 45.5 |
| Primary education | 156 | 33.2 |
| Secondary education | 160 | 34 |
| Higher education | 37 | 7.9 |

completed their higher education were the least affected with RA, as shown in **Table 6**.

## Discussion

This study investigated the demographic, clinical, and serological data of Iraqi patients with RA. All patients followed-up by three rheumatologic clinics in Basrah province, south of Iraq. Our study population has a similar clinical course and prognosis compared with the patients from other ethnic origins. The female: male ratio was 22:5 in this study, which was much higher than that reported in Western populations [13,14], but closer to some studies in developing countries and Brazil [3]. Female preponderance may be related to sex hormones [15], associated with complex effects on the immune system or, may be related to the easier access to clinical data in female patients attributed to the frequent visits to the rheumatologic clinics in comparison to men in our society. However, the full explanation for why the disease is more common in women remains elusive

[16]. In this study, the mean age at disease onset was 41 ± 2.1, comparable to a study done by M. Intriago et al. [17]. In this study, the smoking rate was (17.4% ) which is higher than the smoking rate among rheumatoid arthritis patients in a study done in the United Arab Emirates by RajaieNamas et al.[15] and, in a study done in Equador by Carlos Ríos et al. [18], who found 11% and 9.5% of their study population were smokers, respectively. Smoking is a well-recognized factor in the etiology and the severity of RA [19,20]. In this study, we found 20.2% of RA patients have a family history of RA, which is higher than a study done by Rajaie Namas et al.[15]. Methotrexate and antimalarials were the most used disease-modifying antirheumatic drugs in our study population in percentages of 96.2% and 40.4%, respectively, while etanercept and infliximab were the most used biologics in ratios of 52.6% and 17.8%, respectively. In this study, we found the wrist was the most affected joint, followed by MCP and PIP, whereas the hip was the least affected joint. This result agrees with the finding of Terao C et al. [21], who found a high frequency of wrist involvement than the involvement of MCP and PIP in his study population. Wrist, MCP, and PIP involvement in our study population were higher than those in a study conducted in Turkey by S. Kobak [2]. The relatively high frequency of tenderness and swelling in large and wrist joints compared with MCP and PIP joints may explain this difference in surface area. However, the surface area cannot fully explain the highest frequency of wrist involvement than the frequencies of the MCP or PIP joints. Anemia and CTS were the most common comorbidities associated with our RA patients; this result is consistent with S Kobak finding [2] Rheumatoid nodules were recorded only in15.1% of our patients, which is quite different from the rate reported in the literature, which is 30%[3]. Calagüneri et al. reported a nearly similar rate of rheumatoid nodules demonstrated in Turkish patients (18.1%) [21]. Lung involvement was found in 10.6% of our study population, which is less than the finding of Maria do Socorro Teixeira Moreira Almeidaa, et al. who found 39.8% of their study population have lung involvement [3]. In contrast to other studies [2,22,23]. Sicca symptoms were found only in 6.3% of our patients. In this study, positive RF and anti-CCP antibody rates detected in our patients were higher than those reported in the literature. Positive RF rates are 65%, 62%, and 60% in English, Malaysian and Kuwaiti patients, respectively [12,24]. Ulnar deviation was the most common deformity, and Z deformity was the least deformity reported in this study in percentages of 19.4% and 15.1%, respectively. Diabetes mellitus, hypertension, and dyslipidemia were the most prevalent comorbidities (43.6%, 42.3%, and 40.4%, respectively) reported in this study, while dyslipidemia, DM, thyroid disease, and cancer (43.5%, 34.5%, 23.9% and 6.3%, respectively) were more prevalent in UAE study [15]. In this study, we found 54.5% of our study population were not completed their primary education, which is comparable to a study done in Brazil by Maris do Socorro Teixeira Moreira Almeidaa, et al. who found 50% of their study population were not completed their elementary education [3].

## Conclusion

Compared with patients from Western countries and other studies, our RA patients were characterized by similar demographic clinical and serological characteristics, but a higher female preponderance and higher illiteracy rate were reported.

### Recommendation

Since our trial includes data from RA patients followed-up by only three clinics in Basrah province, it cannot represent the whole Iraqi population. Therefore multicenter studies with large patient samples are required.

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