

Incidence of Rheumatoid Arthritis at Marjan Teaching Hospital in Babylon, Iraq (2014–2019)

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Abstract

Background: Rheumatoid arthritis is a chronic disease associated with inflammation and progressive damage of joints. It is present in the Middle East and North Africa where the epidemiology of RA remains poorly understood with a dearth of data of the prevalence and activity of disease among Arab countries. The prevalence of RA in Babylon, Iraq in 1975 was 1.02, but during the past decade it was noticed that the prevalence and clinical data varied greatly depending on the area of the study. **Objectives:** We tried to estimate the incidence of RA in Babylon Province, Iraq during 2014–2019. **Materials and Methods:** It was a cross-sectional study to detect new cases of the disease in Marjan Teaching Hospital from 2014 to 2019. All patients were diagnosed according to the American College of Rheumatology criteria of 1987 and the revised one of 2010. **Results:** The total number of new RA cases during this period was 1814 patients. Females were 1577, and male patients were 237. The incidence was 1.1 in 2014 and then reached 1.7 in 2019 with an accumulative risk of 10.0. The average duration of the disease was 2.1 years, and the average age was 43 years. **Conclusion:** This study was done to follow the previous study performed in the same hospital between 2001 and 2011. The incidence was not significantly increased during the period of this study when compared with other studies. This study lacks the rate of severity and response to treatment, which indicate that another study is needed. It is done to see the incidence of disease and the effect of social and environmental factors that followed war conflicts in the area of Iraq.

Keywords: Incidence, Iraq, rheumatoid arthritis

INTRODUCTION

Rheumatoid arthritis (RA) is a chronic autoimmune inflammatory disease associated with progressive joint damage and disability.^[1]

Disease-modifying anti-rheumatic drugs (DMARDs) are the mainstay treatment for RA prescribed to relieve joint pain and swelling and to reduce disease activity and disability.^[2,3]

Newer biologic agents are typically used in patients with severe unresponsive disease to the classical DMARDs.^[4,5]

In the Middle East and North Africa (MENA) region, the epidemiology of RA remains poorly understood with a dearth of data on its prevalence and disease activity among Arab populations. A recent global burden study estimated

RA prevalence in the MENA region as lowest as 0.16%, and RA disease severity and management appear to vary geographically in the region.^[6]

The prevalence of rheumatoid in Babylon Province in 1975 was 1.02, and the criterion of diagnosis was the American College of Rheumatology (ACR) 1987, which was used to identify patients with rheumatoid.^[7]

They estimated the global prevalence of RA to be 0.24%, without noticeable change during the period from 1990 to 2010. Disability-adjusted life years for RA increased

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globally from 3.3 million in 1990 to 4.8 million in 2010, but this increase was attributed to population growth and longer life length.^[6]

During the past decade, it was noticed that prevalence and clinical features of rheumatic diseases varied greatly depending on the region, life style, and social status, suggesting that genetic and environmental factors play an important role in the occurrence and progression of rheumatic diseases.^[8]

The prevalence odds ratio for male and female veterans in the age 18–29 years has increased significantly from 2000 to 2015 following two major military interventions. In USA, army personnel suffer from arthritis.^[9]

In early June 2014, following further large-scale offensives in Iraq, Islamic State of Iraq and Syria (ISIS) seized control of one-third of Iraq; this made big social trauma and there was wave of immigrants inside and outside the country which lasted for many years.

In the context of limited data on the epidemiology of RA in the Iraq and Arab regions, we aimed to estimate the incidence of the disease in Babylon Province during the period of 2014–2019.

MATERIALS AND METHODS

This study was done for 4 years between 2014 and the end of 2019; it was a cross-sectional study to detect new cases of RA diagnosed in Marjan Teaching Hospital in Babylon, Iraq.

The total number of patients who visited the Department of Rheumatology was calculated for each month, and sex, age, and demographic data were recorded.

The new cases of RA, which was diagnosed according to the criteria of 1987^[10] or 2010^[11] revised criteria, were recorded along with the demographic data of patients and were compared with the total number of musculoskeletal disorders.

Data included sex, birth year, residency, and latex test. All patients were diagnosed as RA according to its ACR 1987 revised criteria.

The number of patients in each year was reported according to their age. The age of each patient at the time of diagnosis of RA and latex test were also recorded, and anti-cyclic citrullinated peptide (CCP) was also recorded for each patient.

The initial type of therapy of patients was recorded: either synthetic DMARDs or biological agents.

This study included only patients who receive their treatment from government hospitals and did not involve those with RA treated by a private outpatient clinic. The numbers of patients who visited the Rheumatology Unit

for receiving medical care for each month in all years were recorded and collected for each year separately. These numbers were obtained from statistical department records. The incidence of RA was obtained and then the cumulative incidence of all years was obtained. The separate incidence for female and male patients was also obtained [Table 1].

Ethical considerations

The study was conducted in accordance with the ethical principles that have their origin in the Declaration of Helsinki. It was carried out with patients' verbal and analytical approval before the sample was taken. The study protocol and the subject information and consent form were reviewed and approved by a local Ethics Committee according to the document number 77 (dated June 18, 2014).

RESULTS

The total number of patients who attended the Rheumatology Clinic of Marjan Teaching Hospital between 2014 and the end of 2019 was 97,372 patients with an average of 19,474 patients per year. About 1814 patients conformed to had RA: female 1599 (87%) and male 237 (13%) over that period.

The number of patients in 2014 was 201 (11%), 2015 was 360 (19.8%), 2016 was 280 (15.4%), 2017 was 250 (13.7%), 2018 was 414 (22.8%), and lastly in 2019 was 319 (17%).

The difference in these years and female-to-male ratio were shown in Table 2.

Table 1: Incidence for each year and cumulative incidence

Year	Incidence	Cumulative risk
2014	1.1	1.1
2015	1.9	3.0
2016	1.5	4.5
2017	1.3	5.8
2018	2.2	8
2019	1.7	9.7

Table 2: Total number of patients who attended the Rheumatology Clinic of Marjan Teaching Hospital between 2014 and the end of 2019 (females and males)

Year	Total	Male (%)	Female (%)	Male: female
2014	201	21 (10.4)	180 (89.6)	1:9
2015	360	50 (13.8)	310 (86.2)	1:6
2016	280	19 (6.7)	261 (93.7)	1:13
2017	250	33 (13.2)	217 (86.8)	1:7
2018	414	64 (15.4)	350 (84.6)	1:5
2019	309	50 (15.4)	259 (84.6)	1:5
Total years	1814	237 (13)	1,577 (97)	1:7

The average age was 43 years, and 81% of the patients were married at the time of diagnosis, with the average child number for each patient was 4 for those patients with RA.

The seropositive patients were 65%, because latex positivity was 58% and anti-CCP antibody was 39% because of non-availability of the test in the hospital, and all patients were from Iraqi nationality.

The education level of diagnosed patients was either unable to read or primary school level; middle and secondary

school level was 60%; and only 10% were either in the college or completed their college education [Table 3].

The cigarette smoking status and shisha smoking were present in about 13% of patients at the time of diagnosis [Table 3].

The average duration of the disease at the time of diagnosis was 2.1 years and ranges between 6 months and 6.2 years.

The incidence starts from 1.1 at 2014 and reaches 2.2 at 2019 and accumulative risk starts from 1.1 at 2014 and reaches 10.0 at 2019 [Table 4].

Table 3: Demographic and clinical characteristics

	<i>n</i>	%
Gender		
Male	237	13.1
Female	1,577	86.9
Marital status		
Single	211	11.6
Ever-married	1,603	88.3
Education		
No formal education/primary	565	31.1
Middle/secondary school	821	45.2
University	428	23.5
Smoking status		
Never smoked	1,547	85.3
Ever smoking	267	14.7

Table 4: Mean male and female age each year with percent of latex test in each year

Year	Mean age, male	Mean age, female	Latex test, %
2014	44 + 16	45 + 16	55
2015	46 + 71	45 + 40	60
2016	54 + 10	46 + 40	57
2017	42 + 21	49 + 42	62
2018	44 + 22	49 + 80	58
2019	42 + 13	44 + 29	61
Total	42 + 13	44 + 25	58

DISCUSSION

There is limited information on the epidemiology of RA in Iraq and Arab regions.^[11]

The study was done to follow the previous study done in the same center between 2001 and 2011, to detect the incidence of RA; the criteria of diagnosis which were used previously were the only revised criteria of 1987.^[10]

It was a retrospective study and was done to compare new cases of RA with other musculoskeletal disorders in a tertiary center that manages rheumatic diseases in Iraq.^[12]

The incidence of the disease was of no significant increase during the period of the study.

When compared with the previous study, the latex test in the previous study was positive in 52%, whereas in this current study it was positive in 58%.

The total female number of patients was 87% during the period of the study, which was approximately the same in the study done in 2018 to estimate the epidemiology and treatment patterns of RA in a large cohort of Arab patients.^[13]

The age of patients in this study was comparable to age in nearby countries, but was younger than that of patients in North America and Europe; it may not only be related

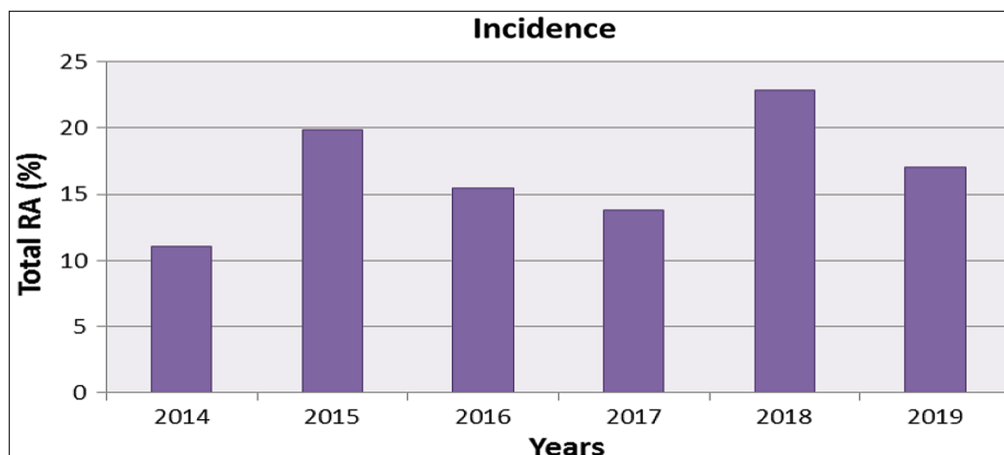


Figure 1: Incidence of rheumatoid arthritis (2014–2019)

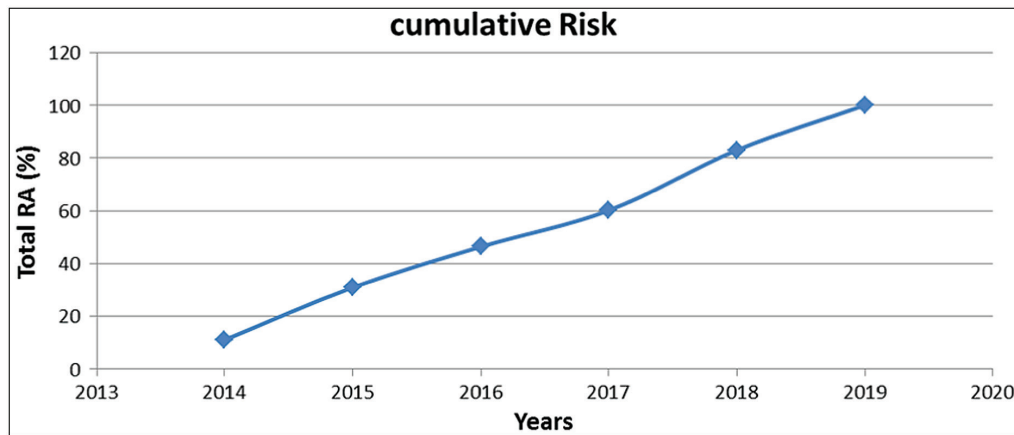


Figure 2: Cumulative risk for developing rheumatoid arthritis for each year

to the average lower age of our population, but also be related to genetic or environmental factors.^[14]

This is also seen with other diseases that are related to genetic disorders such as endocrine diseases or oncology disorders; the age at the time of diagnosis in these disorders was younger, about the range of two decades than western countries.^[15]

This study misses the rate of severity, response to therapy after initiation, and the rate of remission, so further studies are needed to address these issues.

The main goal of this study was to see the incidence of RA during the period from 2014 to 2019 and to see the effect of social and environmental factors that followed the ISIS invasion of Iraq.

The incidence of RA in this study was 1.1 at 2014 and 2.2 at 2019, whereas the incidence of RA at 2001 and 2011 was 1.6 and 2.1, respectively [Figure 1].

This variation, _although it is not significantly large, _may be due to the disturbance in the healthcare system in Babylon city besides other cities and the immigration that happened in that period.

The accumulative incidence in this study was from 1.1 in 2014 to 10 in 2019, whereas in the previous study it was from 1.6 in 2001 to 22.7 in 2011 [Figure 2].

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Conflicts of interest

There are no conflicts of interest.

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