

"Risk Factors of Chronic Arthritis in Patients Attending Baghdad Teaching Hospital": A REVIEW

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Abstract

"Arthritis" is a disorder that affects the body joints, the word was delivered from mixing Latin and Greek origins. The current study aims to identify the common types of arthritis and its risk factors in patients attending the outpatient clinic in Baghdad Hospital of medical city. The study was cross-sectional and the data was collected by direct interview and through a special questionnaire, the sample was randomly chosen and analysed through a descriptive statistical approach by using the known test chi-square. Recent study showed that most common type of arthritis was rheumatoid arthritis 86(57.4%). In addition, it noted that mostly 84(56%) who were in sampled study were aged (36-65) years most of them were females 122(81.3%), study findings appeared that a higher percent of BMI was among (overweight $25 <$) was 55(36.7%) and (obesity ≥ 30) was 48(32%). The study concluded that so many factors may be associate with the incidence of chronic arthritis and there is variation in the effect of those factors, but the current study found that these factors may contribute to increase the incidence: female gender, Age group, Negative food consuming, obesity, housewife positions. Rheumatic arthritis was the most common form in disease frequency. Majority of the study sample were housewives. Most of the patients were females. More than half of the sample was young age group. Osteoarthritis patients were suffering from obesity. The study recommended establishing more healthy programs for early diagnosis, effective treatment and follow up patients, health education programs about doing some exercises, daily walking and eating healthy.

Keywords: Body Mass, Arthritis, Rheumatoid, Ambulatory Care, Health Education, Early Diagnosis.

"عوامل الخطر لالتهاب المفاصل المزمن لدى المرضى المترددين على مستشفى بغداد التعليمي"

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الخلاصة

التهاب المفاصل " هو اضطراب يصيب مفاصل الجسم، وقد جاءت الكلمة من مزيج لغوي من أصول لاتينية ويونانية. تهدف الدراسة الحالية إلى التعرف على الأنواع الشائعة من التهاب المفاصل وعوامل الخطر المرتبطة بها لدى المرضى الذين يراجعون العيادة الخارجية في مستشفى بغداد في مدينة الطب. تم التركيز بشكل خاص على التطورات الأخيرة التي أدت إلى تحسين فهمنا لمخاطر الأمراض وتطورها. كانت الدراسة مقطعية وتم جمع البيانات عن طريق المقابلة المباشرة ومن خلال استمارة خاصة وتم اختيار العينة عشوائياً وتحليلها من خلال المنهج الإحصائي الوصفي وباستخدام اختبار مربع كاي المعروف. أظهرت الدراسة أن

النوع الأكثر شيوعًا من التهاب المفاصل هو التهاب المفاصل الرثوي 86 (57.4%). بالإضافة إلى ذلك، لاحظت أن 84 (56%) من المشاركين في عينة الدراسة تراوحت أعمارهم بين (36-65) سنة، معظمهم من الإناث. 122 (81.3%)، وأظهرت نتائج الدراسة أن نسبة أعلى من مؤشر كتلة الجسم كانت بين (الوزن الزائد). =25 (>) كانت 55 (36.7%) وكانت (السمنة=<30) 48 (32%). وخلصت الدراسة إلى أن عوامل كثيرة قد تترافق مع الإصابة بالتهاب المفاصل المزمن وهناك تباين في تأثير تلك العوامل، لكن الدراسة الحالية وجدت أن هذه العوامل قد تساهم في زيادة الإصابة: الجنس الأنثوي، الفئة العمرية، تناول الطعام السليبي، السمنة، ربات المنازل. كان التهاب المفاصل الروماتيزمي هو الشكل الأكثر شيوعًا في تكرار المرض. وكانت غالبية عينة الدراسة من ربات البيوت. وكان معظم المرضى من الإناث. وكان أكثر من نصف العينة من الفئة العمرية الصغيرة. كان مرضى هشاشة العظام يعانون من السمنة. وأوصت الدراسة بوضع المزيد من البرامج الصحية للتشخيص المبكر والعلاج الفعال ومتابعة المرضى، وبرامج التنقيف الصحي حول ممارسة بعض التمارين الرياضية، والمشي اليومي، وتناول الطعام الصحي.

الكلمات المفتاحية: كتلة الجسم، التهاب المفاصل، الرثوي، الرعاية الإسعافية، التنقيف الصحي، التشخيص المبكر

Introduction:

“Arthritis” is a disorder that affects the body joints, the word was delivered from mixing Latin and Greek origins "inflammation of a joint," 1540s, from medical **Latin** arthritis, from Greek (nosos) arthritis " (disease) of the joints," from arthritis, fem. of arthritēs (adj.) "pertaining to joints" (Greek nosos is a fem. noun), from arthron "a joint" (from PIE root *ar- "to fit together")^[1]. Categorization of rheumatic cases is hampered by the absence of a strong etiological evidence for most illness. Recently, the conditions are classified depending on a combination of the positive clinical and laboratory investigations, including observations of abnormal status of anatomical components and organ systems involved; the presence of suspected causes and mechanisms, genes and, sometimes, infectious agents; lastly the general nature of clinical manifestations of the illness. Hence, particularly it is important to diagnose from the early stage^[2] moreover, there is consideration of pathological and clinical overlap between many of the rheumatic diseases. Symptoms generally include joint pain and stiffness. Other manifestations may include redness and warmth, swelling and decreased range of motion of the affected joints. While other organs are also affected. Onset can be gradual or sudden^[3]. Arthritis is one of most well-known chronic diseases, forty-six million of the Americans or one of every five adults has been diagnosed with arthritis and 300,000 cases were reported in 2003 & 2004 and 19 million US adolescents reported arthritis-attributable limitation of the activity and 8 million patients reported arthritis affected their work^[4]. Factors for developing arthritis can be generically divided into host- and environment-related. Host factors that have been associated with illness development may be further grouped into genetic; epigenetic; hormonal, reproductive and neuroendocrine; and comorbid host factors. In turn, environmental risk factors include smoking and other airborne exposures; microbiota and infectious agents; diet; and

socioeconomic factors. Modifiable risk factors that increase the likelihood of arthritis are: gaining weight and being Obese, Infections, Injuries of body joints, job and Smoker patients. And irreversible risk factors are: Age, sex, Genes and Inherited Traits [5]. In the last decades, the prognosis of arthritis patients has been dramatically improved by the expansion of knowledge on the etiology and pathophysiology of the disease that paved the way for the development of a number of currently available effective drugs [16]. However, there is still a substantial gap in the management of the disease, with many patients failing to attain profound and sustained clinical responses, ultimately demonstrating modest long-term outcomes. Even more strikingly, the actual impact on the prevention or delay of the disease in subjects at high-risk has overall been marginal [17].

Aim of study: To identify the common types of arthritis and its risk factors in patient attending the outpatient clinic in Baghdad Hospital of Medical City.

Methods

Study design: The current study was designed as Cross-sectional, and settings were initiated at Baghdad Teaching Hospital in Medical City.

Duration of the Study: The study was conducted from 15th October 2018 to 15th June 2019.

Setting of the Study: Study Population was all patients present to Baghdad Hospital in medical city.

Sample Size and Sampling Technique: Data was selected through a simple random technique. Sample Size was 150 cases calculated by a specific formula both genders at all ages as bellow equation [11]

$$\text{Unlimited population: } n = \frac{z^2 \times \hat{p}(1-\hat{p})}{\epsilon^2}$$

$$\text{Finite population: } n' = \frac{n}{1 + \frac{z^2 \times \hat{p}(1-\hat{p})}{\epsilon^2 N}}$$

Where; z is the z score, ϵ is the margin of error, N is the population size, \hat{p} is the population proportion

Inclusion Criteria: included patients who were able to be followed up, cooperated, educated and eligible to the study from both sexes and those who had regular and visits periodic examination, while complicated cases were not fitting the study rules, those following surgical interventions, lost follow up and who refused participation were excluded.

Ethical Issue: the hospital Direct agreement was taken from the administration to facilitate the duty and direct verbal permission was taken from the patients themselves to initiate the study.

Data Collection: Data was collected through a specific questionnaire specially designed by the researcher depending on previous studies ^[12] ^[18] and WHO indicators (Occupation, Education, Properties, Crowding Index) ^[13]^[14] and direct interview, questionnaire included two domains, sociodemographic part and medical part. Sociodemographic factors included, sex, age, job, types of the disease, . Medical part included family history, weight, height, Body Mass Index, kind of arthritis, and so on. Data was Participant patients fitting the inclusion criteria attending Baghdad hospital in medical city.

Data Analysis: Statistical interpretation approaches to obtain outcomes and findings were used for analysing and assessing study results by applying the program (SPSS) version 19. Data was analysed through descriptive statistical approach (frequency& percentage) and using chi-square test.

Selected patients were diagnosed at first by a specialist physician in the field of Rheumatology, then categorized into different types of arthritis accordingly, after that patient history was taken and some anthropometrical and investigations were measured. The current study focuses on risk factors of the disease for already diagnosed patients, many investigations were done to confirm the diagnosis, like X-ray, MRI, Bone density, Serum Vitamin D, and many other blood tests.

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Authors Contributions: Researches Authors were contributing to the studied conception and designing, analysing and collection of the data and the manuscript drafting was reviewed critically regarding the manuscript for the importance of intellectual content, read and approved its final outcome and version.

Results and Findings

Table (1): Distribution of study sample according to type of Arthritis:

Types	Frequenc y	Percent %
Ankylosing spondylitis	13	8.7%
Gout	1	0.7%
Infectious arthritis	9	6%
Lupus	14	9.3%
Osteoarthritis	14	9.3%
Osteoporosis	5	3.3%
Psoriasis arthritis	8	5.3%
Rheumatoid arthritis	86	57.3%
Total	150	100%

Table (1) shows that the most known type of arthritis is rheumatic arthritis which is the most aggressive one.

Table (2): Distribution of study sample according to Occupation:

Occupation	Frequency	Percent %
Employee	16	10.7
housewife	88	58.7
IT (Information Technology)	2	1.3
retired	8	5.3
student	31	20.7
teacher	5	3.3
Total	150	100%

Table (2) shows that majority of the study sample (58.7%) were housewives.

Table (3): Relationship between type of Arthritis and Gender:

Gender	Type of Arthritis								Total	P-value
	RA	PA	OA	O P	LUP US	IA	GO UT	A S		
Female	72	6	12	4	14	8	1	5	122	$X^2=20.23$ 6^a $P=0.04$ S
	83.7%	75.0%	85.7%	80%	100%	88.9%	100%	38.5%	81.3%	
Male	14	2	2	1	0	1	0	8	28	
	16.3%	25.0%	14.3%	20%	0.0%	11.1%	0.0%	61.5%	18.7%	
Total	86	8	14	5	14	9	1	13	150	
	100%	100%	100%	100%	100%	100%	100%	100%	100%	

RA: Rheumatoid Arthritis, PA: Psoriasis Arthritis, OP: Osteoporosis, IA: Infectious Arthritis, AS: Anchylosing spondylitis.

P-Value: Probability of Significance.

S: Significant Association.

Table (3) shows the relationship between of types of arthritis according to gender. Most cases (81.3%) are females. It presents that a significant relationship between the selected factors and thus female gender is considered as a significant risk factor. (Using chi-square test).

Table (4): Relationship between type of Arthritis and Age groups:

Age group (years)	Type of Arthritis								Total	P -value
	RA	PA	OA	OP	LUPUS	IA	GO UT	AS		
1-12	7	2	0	0	0	2	0	1	12	$X^2=44.01$ 1^a $P =0.028$ S
	8.1%	25.0%	0.0%	0.0%	00.0%	22.2%	0.0%	7.7%	8%	
13-22	7	0	0	0	6	2	0	2	17	
	8.1%	0.0%	0.0%	0.0%	42.9%	22.2%	0.0%	15.4%	11.3%	
23-35	11	2	1	1	1	0	1	4	21	
	12.8%	25.0%	7.1%	20.0%	7.1%	0.0%	100%	30.8%	14.0%	
36-65	51	3	12	3	7	4	0	4	84	
	59.3%	37.5%	85.7%	60%	50%	44.4%	0.0%	30.8%	56%	
>65	10	1	1	1	0	1	0	2	16	
	11.6%	12.5%	7.1%	20%	.0%	11.1%	0.0%	15.4%	10.7%	
Total	86	8	14	5	14	9	1	13	150	
	100%	100%	100%	100%	100%	100%	100%	10%	100%	

RA: Rheumatoid Arthritis, PA: Psoriasis Arthritis, OP: Osteoporosis, IA: Infectious Arthritis, AS: Anchylosing spondylitis.

P-Value: Probability of Significance.

H.S: Highly Significant.

Table (4) shows the relationship between types of arthritis according to age group, which shows that (56%) of cases are within (36-65) age group. It presents that there was a significant interaction

between the two factors, revealing that this age group are the most vulnerable to get the illness. (By applying "chi-square test").

Table (5): Relationship between type of Arthritis and Family History:

Family History	Type of Arthritis								Total	P-value
	RA	PA	OA	OP	LUPUS	IA	GO	AS		
YES	28	5	7	2	2	2	1	4	51	$X^2=9.636^a$ P=0.21 NS
	32.6%	62.5%	50%	40%	14.3%	22.2%	100%	30.8%	34.0%	
NO	58	3	7	3	12	7	0	9	99	
	67.4%	37.5%	50%	60%	85.7%	77.8%	0.0%	69.2%	66%	
Total	86	8	14	5	14	9	1	13	150	
	100%	100%	100%	100%	100%	100%	100%	100%	100%	

RA: Rheumatoid Arthritis, PA: Psoriasis Arthritis, OP: Osteoporosis, IA: Infectious Arthritis, AS: Anchylosing spondylitis.

P-Value: Probability of Significance.

N.S: Non-Significant.

Table (5) Shows the relationship between types of arthritis according to family history, which shows that (66%) of the sample have no family history. (By applying "chi-square test").

Table (6): Relationship between type of Arthritis and Body Mass Index:

BMI	Type of Arthritis								Total	P-value
	RA	PA	OA	OP	LUP US	IA	GO UT	AS		
Under weight	2	0	0	0	0	3	0	0	5	$X^2=58.309^a$ P=0.01 S
	2.3 %	0.0 %	0.0 %	.0 %	0.0% %	33.3 %	.0% %	.0 %	3.3 %	
Normal	27	4	0	1	7	2	0	1	42	
	31.4 %	50% %	0.0 %	20 %	50.0 %	22.2 %	0.0 %	7.7 %	28 %	
Over weight	35	3	3	3	5	2	0	4	55	
	40.7 %	37.5 %	21.4 %	60 %	35.7 %	22.2 %	0.0 %	30. 8%	36. 7%	
Obesity	22	1	11	1	2	2	1	8	48	
	25.6 %	12.5 %	78.6 %	20 %	14.3 %	22.2 %	100 %	61. 5%	32 %	
Total	86	8	14	5	14	9	1	13	150	
	100 %	100 %	100 %	10 0 %	100% %	100% %	100 %	10 0%	100 %	

RA: Rheumatoid Arthritis, PA: Psoriasis Arthritis, OP: Osteoporosis, IA: Infectious Arthritis, AS: Anchylosing spondylitis.

P-Value: Probability of Significance.

S: Significant.

BMI: Body Mass Index.

Table (6) This table shows the distribution of type of arthritis according to BMI. (78.6%) of osteoarthritis patient were obese. It presents that there was a high significant interaction between the two factors, and hence obesity and overweight 48 (32%) of all types of arthritis were obese but 55 (36.7%) are above weight were a causative risk factors to have arthritis.

(By applying "chi-square test").

Table (7): Distribution of study sample according to chronic diseases:

Chronic diseases	Frequency	Percent %
ANGINA	1	0.7
Breast cancer	1	0.7
DM	7	4.7
DM&HP	14	9.3
EPILEPSY	1	0.7
HP	34	22.7
NO	92	61.3
Total	150	100%

Angina: A heart condition in which there is insufficiency of blood perfusion of cardiac muscle.

DM: Diabetes Mellitus.

HP: H. Pylori: A bacterial infection of the stomach.

Table (7) This table shows that more than one third (38.7%) of the study sample were suffering from different chronic diseases, mostly Diabetes which is a risk factor that initiates arthritis as a complication.

Table (8): Relationship between type of arthritis and Negative food consuming:

Negative food consuming	Type								Total	P -value
	RA	PA	OA	OP	LUPUS	IA	GOUT	AS		
Yes	17	7	8	4	14	9	1	8	120	X ² =13.625 ^a P=0.58 NS
	19.8%	87.5%	57.1%	80%	100%	100%	100%	61.5%	80%	
No	96	1	6	1	0	0	0	5	30	
	80.2%	12.5%	42.9%	20.0%	0.0%	0.0%	0.0%	38.5%	20.0%	
Total	86	8	14	5	14	9	1	13	150	
	100%	100%	100%	100%	100%	100%	100%	100%	100%	

Table (8) shows that distribution of type of arthritis according to negative consuming of food show that 57.1% of osteoarthritis consuming unhealthy (Junk, Fast, Fried, Oily, Salty, Pickled) food. It presents that there was a no significant interaction between the two factors. (using chi-square test).

Table (9): Distribution of study sample according to surgery and injury:

Surgery	Frequency	Percent %
No	141	94%
Yes	9	6%
Total	150	100%
Injury	Frequency	Percent %
No	147	98%
Yes	3	2%
Total	150	100%

Table (9) This table show that (94%) of the study sample isn't doing surgery and (98%) of study sample isn't having injuries in their joints.

Table (10): Distribution of study sample according to smoking habit:

Smoking	Frequency	Percent %
No	145	96.7%
Yes	5	3.3%
Total	150	100%

Table (10) This table show that (96.7%) of the study sample is non-smokers.

Table (11): Distribution of study sample according to deformation:

Deformation	Frequency	Percent%
No	135	90%
Yes	15	10%
Total	150	100%

Table (11): This table show that (90%) of the study sample didn't have deformation.

Discussion

There are many types of arthritis with different causes and risk factors associated with each type. The study shows that the most frequent category of arthritis is "rheumatoid arthritis" this result disagreed with results of the arthritis prevalence and "musculoskeletal disease" in USA that found the osteoarthritis is the most common types ^[6] as compared with Rheumatoid arthritis in this study representing 57.3 % of the examined cases which comes in agreement for both. The prevalence of Osteoarthritis and rheumatoid arthritis is higher in women than men at age group (36-65) years this

acceptable with “the encyclopaedia of Arthritis” 2nd Ed. Published by Info-base Publishing Inc. in New York, 2010 that had published "three times" among women is higher than in men at age groups (40-60) years ^[7]. While males have higher prevalence of ankylosing spondylitis than females this is the same to the "HLA" studies confirmed that an increased risk is conferred by HLA-B27 homozygosity in the type "Ankylosing Spondylitis" in 2006 ^[8]. In this study the family history of each type of arthritis has various effects with different percentage; the results were acceptable with certain study while other were different. The result of relationship between type (OS&RA) and Negative food consuming food with low level of vitamins D this is approximate to study of low levels of "vitamin D" in osteoarthritis resulted from two longitudinal studies, 2007 ^[9]. The relationship between obesity and risk of OA shows that 78.6% of osteoarthritis patient is suffering from obesity but the study of BMI and susceptibility to knee OA was 35% which comes compatible to another study ^[10]. More than half of the study sample were housewives it is may be result from the impact of pregnancy, work that over loading on body joints with prolonged lifting and standing and increase manual dexterity. In addition to that there are many environmental factors that could play a role in each type of arthritis this is needed more time and potential to study. The result of relationship between type (OS&RA) and Negative food consuming food with low level of vitamins D this is approximate to study of low levels of vitamin D of osteoarthritis results of two longitudinal studies, arthritis rheum 2007^[20]. In addition to that there are many environment factors could play a role in each type of arthritis this is need more time and potential to study.

Conclusions and Recommendations:

The study concluded that so many factors may associate with the incidence of chronic arthritis and there is variation in the effect of those factors. But the current study found these factors may contribute in increasing the incidence of morbidity from Arthritis female gender was, Age group (36 to 65) years was mostly affected by the disease specifically O.A, Negative food consuming, and BMI is among (over weight and obesity), housewife positions. Rheumatoid arthritis was the most common form of arthritis among the studied patients, followed by osteoarthritis.

The study recommended establishing more healthy programs for early diagnosis, effective treatment and follow up patients, health education programs about doing some exercises, daily walking and eating healthy foods like those rich in Omega3, vegetables, fruits, fibre enough water (healthy balanced diet) to avoid over weight are simple ways you can reduce and manage chronic arthritis symptoms, maintaining a healthy lifestyle with avoid over loading on body joints to keep them properly working.

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