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RHEUMATOID ARTHRITIS IN OBESE IRAQI CHILDREN

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Abstract
This paper aims to know the association between obesity with Rheumatoid arthritis.
Forty-four patients were collected from different hospitals in Iraq to assess the prevalence of Rheumatoid arthritis in obese Iraqi children.
This study discussed the Assessment of the prevalence effect of obesity in children with Rheumatoid arthritis
The statistical analysis program SPSS Statistics 23 software package and Microsoft Excel 2013 were relied upon to analyze the data and demographic information collected from the electronic record of patients in the hospital.
And we conclude in this study, there is a statistically significant relationship between the two groups (patients and control), and a direct relationship was found between obesity with Rheumatoid arthritis**.**

Keywords: BMI, Rheumatoid, children, arthritis.

Introduction

Juvenile idiopathic arthritis (JIA) is one of the most common chronic inflammatory diseases of childhood, significantly affecting the quality of life and often disabling in patients [2, 38, 52]. In most children, despite ongoing treatment, the disease remains active for a long time, prolongs the aging period, and requires more and more powerful anti-inflammatory drugs [1,2,3]. JIA is a heterogeneous disease, some variants of which represent a peculiar counterpart to psoriatic and rheumatoid arthritis (RA) in adults [4,5,6].

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The accelerated development in people with rheumatic diseases is facilitated by the large presence of traditional cardiovascular risk factors (abdominal obesity, dyslipidemia, carbohydrate metabolism disorders, AH) and their combination - metabolic syndrome, which significantly increases the risk [7,8] According to the literature, adult patients with rheumatoid arthritis are more likely to develop [9,10]
In adult patients with rheumatoid arthritis, metabolic syndrome is diagnosed 1.6-2.5 times more often than in the general population, especially in the "advanced" stages of the disease. For the pediatric population of patients, it is clear that data on the prevalence of metabolic disorders, the effect of disease activity on them, and the nature of Antirheumatic therapy [11,12,13].
Cardiovascular disturbances in most JIA patients were found to be associated with metabolic disturbances. They were associated with the elevated inflammatory activity of the disease (number of active joints, C-reactive protein level, duration of morning stiffness, severity of functional joint insufficiency, and global assessment of disease). [14,15]
Complete symptom cluster of MS occurred in 21.1% of JIA patients (including 80% of patients with systemic arthritis and 30% of JIA patients), and insulin resistance (IR) according to the HOMA-IR index - at 18.9 % was not determined in the control group [16,17,18]. Preclinical signs of atherosclerosis in the form of an increase in the thickness of the intrinsic complex of (ITIM) of the carotid arteries and disturbances in the structure of the vascular wall were identified in 24.4% of patients, especially those with psoriatic and psoriatic arthritis and systemic arthritis [19].
One of the mechanisms of development of obesity disorders in juvenile idiopathic arthritis is a change in the composition of lipids and fatty acids of cell membranes, which leads to an increase in micro-viscosity and creates conditions for the development of complications especially in osteoarthritis [20].

Material and Method

Patient sample

Forty-four patients were collected from different hospitals in Iraq to assess the prevalence of Rheumatoid arthritis in obese Iraqi children.
This study discussed the Assessment of the prevalence effect of obesity in children with Rheumatoid arthritis

Study Design

Forty-four patients were collected for the evaluation of Rheumatoid arthritis in obese Iraqi children. The patients were distributed according to gender: 12 patients were girls, and 18 patients were boys.
Where it was relied on the electronic record in the hospital for all patients suffering from rheumatoid arthritis to children between 3-5-2019 to 6-8-2021
The body mass index for patient children was divided into two categories by classification (obese, overweight, and normal), and the approved indicator for obesity was 23 kg / m2
Overweight and obesity in children under five years of age are defined as:
Overweight - if the ratio "body weight/height" exceeds the mean value specified in the standard indicators of physical development of children (WHO) by more than two standard deviations.

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obesity - if the ratio "body weight/height" exceeds the mean value specified in the standard indicators of physical development of children (WHO) by more than three standard deviations

Study Period

The electronic record in the hospital was relied on for all patients with rheumatoid arthritis for children between 3-5-2019 to 6-8-2021

Aim of Study

This study aims to know arthritis in obese children, where the main clinical symptom is the types of arthritis in children from 5 years to 16 years old.

Statistical Analysis

Statistical processing of the results was performed using the SPSS Statistics 23 software package. In order to determine the sample size, the sample calculation calculator was used; When choosing a 5% confidence interval, the number of patients was 44. A consistent strategy was also used to calculate BMI, taking into account the coefficient of variation (standard deviation from the arithmetic mean, %), and the normality of the distribution was tested with a p-value test equal to 0.05.

Results

Table 1- distribution of patient according to age n= 30

Age	N	Chi square	P value
5-8	5	2.26	0.012
9-12	15		
13-16	10		

Table 2- distribution of healthy patient according to age

Age	N	Chi square	P value
7-10	9	1.99	0.098
11-14	6		

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Table 3-distribution of patient according to gender

Age	b	G	P value
5-8	3	2	0.88
9-12	9	6	
13-16	6	4	

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Table 4- distribution of healthy according to gender

Age	b	G	P value
7-10	5	4	
11-14	4	2	0.55

Table 5- demographic results of patients N=30

P	N	b	G	P VALUE
Oligoarticular	12	8	4	0.012
Systemic-onset	6	4	2	0.09
Enthesitis-related arthritis	4	3	1	0.082
Psoriatic arthritis	2	2	0	0.88
-negative polyarticular	5	4	1	0.05
p-p	1	1	0	0.99

Table 6- demographic results of g healthy N=30

	N	Boys	Girls	P value
Oligoarticular	6	4	2	0.01
Systemic-onset	3	2	1	0.99
Enthesitis-related arthritis	2	1	1	0.99
Psoriatic arthritis	2	2	0	0.001
-negative polyarticular	2	1	1	0.99
p-p	0	0	0	----

Table 7-outcomes results of patient

P	b	G	P-VALUE
C-reactive protein mg/L	2±1	2±2	0.64
N of joint	2-6	1-3	0.01
Parent/patient global assessment of well-being	0-8	1-9	0.75
CHAQ disability	0.5-3	0-3.6	0.45
Physician VAS	0-3.2	0-2.9	0.03
JADAS (median)	1-4.6	1.5-5.6	0.03

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Table 8-outcomes results of healthy Group

P	b	G	P-VALUE
C-reactive protein mg/L	5±7	6±8	0.02
N of joint	0-4	0-4	0.00
Parent/patient global assessment of well-being	0-5	0-6	0.99
CHAQ disability (0–3)	0-2.5	0-2.4	0.98
Physician VAS Range	1.1	1.2	0.99
JADAS (median)	5.1-8.9	5.2-9.2	0.08

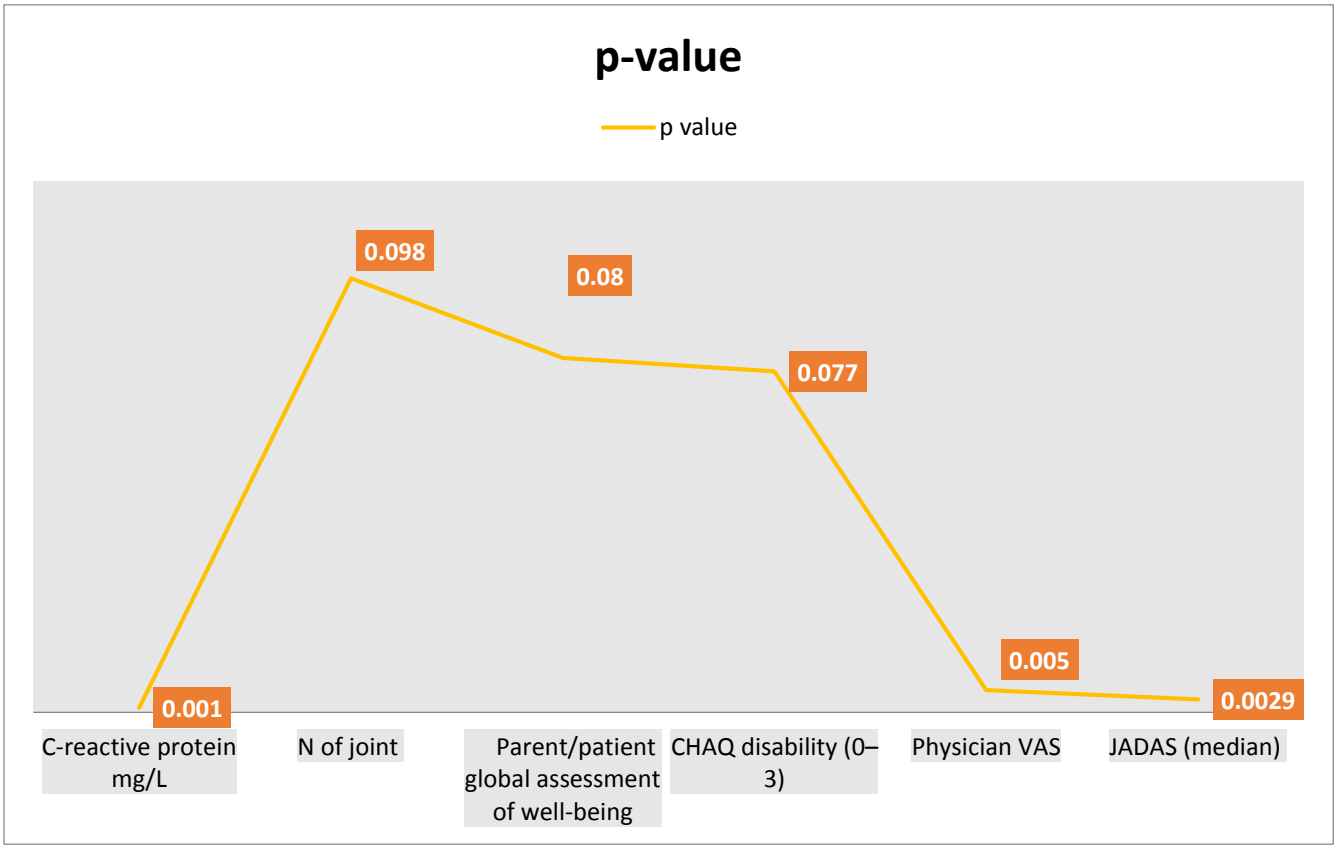

Fig 1- p-value between healthy and obese group

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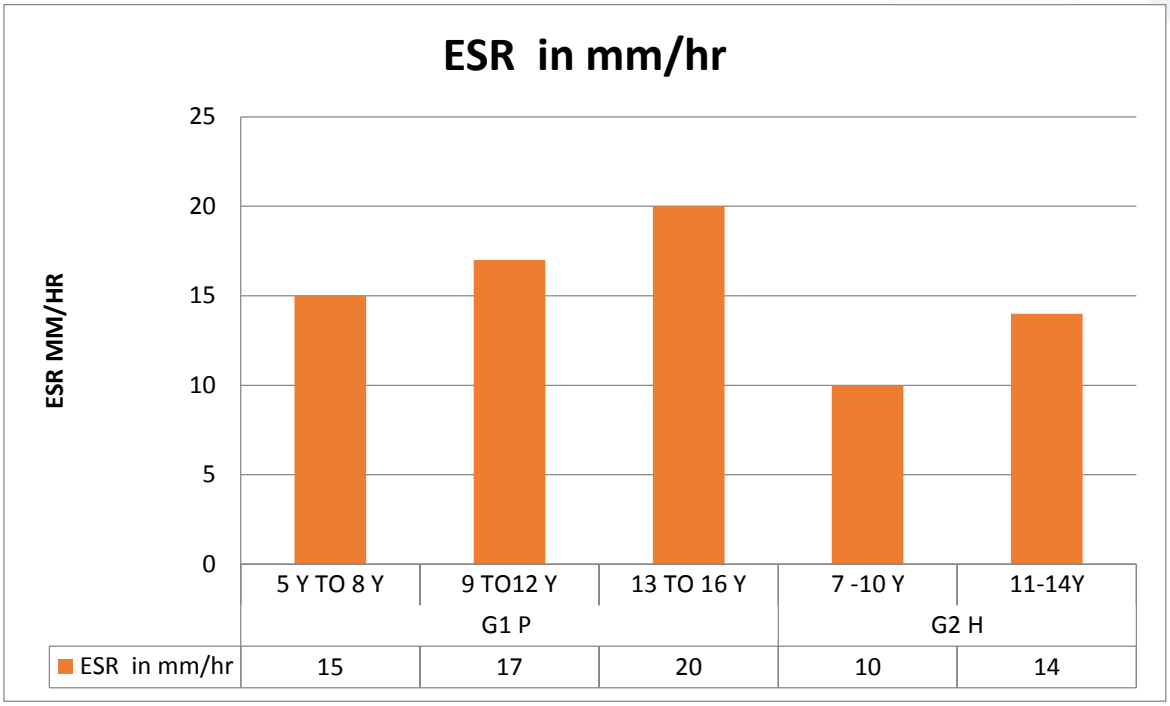

Fig2- ESR According to the type of group

Discussion

Patients were divided into two groups, obese and healthy, if the patient group included 30 patients, and if it was divided into three groups according to age, and the most frequent group was from the age of 9-12 to 15 patients, as for the second control group, the patients were distributed by age into two groups, the most frequent group was from seven to 10 years old, as shown in Table 1.2

In Table Three, which shows the distribution of patients by sex, 18 patients were boys, and 12 patients were girls, and the value of the statistical significance between the two groups was 0.88

By relying on the electronic record available in the hospital, except for patients with arthritis, we find that Oligoarticular was the most frequent in the group of patients for 12 patients, eight boys and four girls, and came in second place for Systemic-onset for six patients (4 b). and 2 g) with a statistical value of (0.09).

Rheumatoid arthritis in children is called chronic arthritis, and it affects both boys and girls alike, between the ages of 5 and 16; and it occurs as a result of abnormal responses of the immune system that cause inflammation in the joints, and the cause of the infection is still unknown until now, Where the immune system produces antibodies, and sometimes these factors lead to inflammation, and viruses and viral infections may be the cause, and in this case, they are not contagious

A number of simple studies that prove the effect of obesity on arthritis in children were also found within this study; Rao Sen, who analyzed 200 pediatric patients suffering from arthritis and obesity, but in this study, no activity associated with it was found. Or the development of osteoarthritis activity in obese children, but on the other hand, in the 2008 Koo-Kari study, which analyzed 100 Belgian

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patients aged between 7 to 14 years who had arthritis, as if their body mass index was very high. Statistical analysis program to know the meta-analysis of patients' outcomes to the existence of a direct relationship between weight gain and Rheumatoid arthritis

Conclusion

In this study, a statistically significant relationship was found between the two groups of patients and control, and a direct relationship was found between obesity and Rheumatoid arthritis.

Few studies were found similar to ours, some of them were consistent with the result obtained, and others did not

Recommendation

Arthritis in children is a disease that requires complex treatment, which depends on the type of disease, its cause, stage of development, severity of symptoms, and main signs. In addition to stopping the pain syndrome, the doctor faces the task of normalizing the function of the patient's immune system and preventing the transition of the disease to the chronic stage in cases where this is possible. For this, mainly conservative methods of treatment are used.

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