Relationship of Vitamin D with Some Electrolytes in the Serum of People with Rheumatoid Arthritis in the City of Samarra

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Abstract

The study was conducted on 50 samples of 30 patients with rheumatoid arthritis. The samples were divided into 15 females, 15 males and 20 control group (healthy) without any disease. The sample was divided into 8 females and 12 males. 80 years) and collected samples from Samarra General Hospital and outpatient clinics of the city. The blood was then collected from the healthy and sick people and separated by centrifugation. Biochemical variables were measured (vitamin D, glutathione , Mallon dialdehyde , uric acid).

The results of the current study showed a significant decrease in the level of vitamin D in the serum of people with rheumatoid arthritis compared to healthy people, and the results showed a significant decrease in the level of glutathione in the serum of people with rheumatoid arthritis compared to healthy people, with no significant differences in Level of Mallon dialdehyde. We also note a significant increase in the level of uric acid in the serum of people with rheumatoid arthritis compared to healthy people.

Key Words :- *rheumatoid arthritis, Vit .D, Oxidative stress*

Introducation

Arthritis is often used to indicate any disorder affecting the joints(1), including symptoms such as Jointsstiffness, Joint pain, Redness, Swelling, difficulty in movement, and may affect other organs. Rheumatoid arthritis, rheumatoid arthritis, gout (2) osteoporosis usually occurs with age and affects the joints near the ends of the fingers at the base of the thumb and neck and below. Back, knees and hips. (3) Rheumatoid arthritis is an autoimmune disorder that often affects the shoulders, hands, knees and feet and also affects cartilage, tendons, and bones through swollen vertebral tissue (2).

Rheumatoid arthritis is a multifaceted form of disease whose causes, symptoms, and treatment are different (4). Rheumatoid arthritis is a common health problem affecting millions of people worldwide, leading to higher health care costs (5) Of the world's population, with a prevalence rate of 1-0.5% (6), while in Colombia it was 0.9% (7).

The treatment of arthritis is focused on alleviating the symptoms and improving the ability of the joints to function. It is sometimes necessary to experiment with various treatments or to combine different treatments with each other in order to be able to determine the best treatment for the patient. There are many drugs used to treat inflammation (8) Including analgesic drugs, nonsteroidal anti-inflammatory drugs or some dietary supplements such as Glucoseamine and Chondroitin sulfate. Studies have shown that corticostroids use longer and higher, leading to peripheral joints. (9) There are many environmental factors that increase the risk of rheumatoid arthritis and the most serious risk is smoking. Previous studies have shown that smoking increases the development of the disease, especially in patients who have a positive result of ACP (10) Environmental factors are not just smoking, but factors such as food, alcohol, vitamin deficiencies, viruses and bacteria. (11) These factors are all outside the body and have no genetic basis, so they are called non-genetic factors (12) Epstein Barr Virus (EBV) was also associated with rheumatoid arthritis. There was an abnormal increase in the number of B lymphocytes infected with this virus in the blood of the rheumatoid arthritis patient. This virus stimulates the

production of antibodies Including the rheumatic factor [13].

Vitamin D is a type of fat soluble vitamin, and sun exposure is the main source for the body's needs of this vitamin, so it is called vitamin sun rays, which is different from the rest of the vitamins not necessary from food sources for this reason enough exposure to radiation Sun for 10 to 15 minutes a day on sunny days, and two to three times a week to get vitamin D requirements in the majority of people [14].

Vitamin D is of biological importance to the body of the organism. It is essential for balance of calcium, bone growth and regulation of the immune system. Its deficiency can cause Rickets disease, osteoporosis, osteoporosis and muscle weakness. Vitamin D deficiency is linked to cancer, cardiovascular disease and schizophrenia. Arthritis, type 1 diabetes, IDDM, psoriasis and vitiligo [15], as well as a decrease in risk associated with increased mortality [16] and increased risk of breast cancer [17].

Oxidative stress is defined as the imbalance between free radicals (ROS), Reactive Nitrogen Species (RNS), and antioxidants, which are important indicators of many pathological conditions, including atherosclerosis [18], as well as disorders Heart, blood vessels and arthritis [19] and an imbalance between it and antioxidants may also cause an increase in blood pressure Hypertension [20].

Since vitamin D may be related to rheumatoid arthritis, the current research target for measuring vitamin D in patients with rheumatoid arthritis.

Material and Method

Collection of specimens

The study was conducted on 50 samples of 30 patients with rheumatoid arthritis. The samples were divided into (15 females, 15 males) and 20 control groups (healthy) without any disease. The sample was divided into 8 females and 12 males. 80 years) and collected samples from Samarra General Hospital and outpatient clinics.

Blood collection

Collect about 6 cm 3 of the blood of healthy and sick people and is divided according to the type of test. The blood is placed in the Jell tubes. It has an airtight cover, free of anticoagulant, leaving the blood at 25 ° C until it coagulates and then placed in the centrifuge for 10 minutes at 3000 cycles / Minute and then the serum was obtained and then placed in small test tubes and kept in the refrigerator at a temperature of 20 - M for the purpose of measuring the biochemical variables, including (vitamin D, glutathione , Mallon dialdehyde, uric acid).

Estimation of Vitamin D

The level of vitamin in the serum was assessed using the Kit kit and manufactured by German company Human by method (21).

Estimation of antioxidant

Glutathione-GSH was estimated by Sedlak, Tietz (22,23). The concentration of uric acid in the serum was estimated using the enzymatic method using several prepared analyzes prepared by the Tunisian Biomegrheb (24).

Estimation of Oxidative stress

Determination of the level of Mallon dialdehyde -MDA in Guidet (25).

Statistical analysis

The results of all tests were analyzed using statistical program SPSS14, mean Mean and standard deviation (SD), and the special differences between the infected groups and the control group were determined using T.Test [26]

Result and Dissection

Measuring the level of vitamin D

The results showed a significant decrease in serum vitamin D levels in people with rheumatoid arthritis compared to healthy subjects as shown in Figure 1.

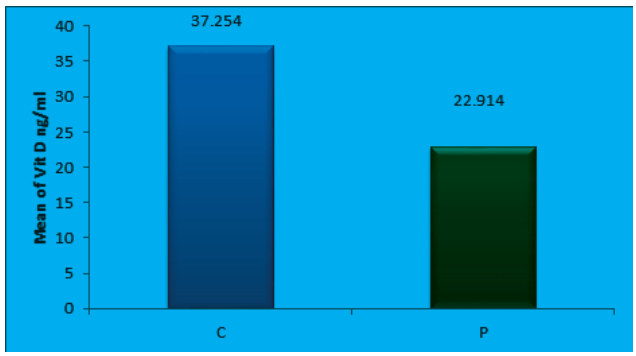

Figure (1): - Vitamin D level in serum samples of study and control groups

Vitamin D deficiency may lead to rheumatoid arthritis. Lee (2016) [27] points out that vitamin D decreases in people with rheumatoid arthritis, which is consistent with current research results. Azzen (2012) [28] found that vitamin D has a role in reducing the risk of rheumatoid arthritis, as there are many immunosuppressive effects including vitamin D as there is a potential relationship between vitamin D deficiency and autoimmune disease [29].

Vitamin D has been studied as an important and potential measure of the causes of many diseases, including rheumatoid arthritis. [30] The reason for vitamin D deficiency may be due to insufficient absorption of the vitamin D, which may be associated with exposure to sunlight [31]. Athanassion (2012) [32] also noted that vitamin D deficiency is very widespread in patients with rheumatoid arthritis and that its deficiency greatly increases the disease. There should also be vitamin D supplementation to prevent osteoporosis as well as relieve pain for patients with rheumatoid arthritis. [33] (2017), Hamad, noted that vitamin D levels were lower in rheumatoid arthritis patients as there should be comprehensive research studies on the role of vitamin D in the development of rheumatoid arthritis and its relationship to disease activity. Vitamin D has the function or function of regulating immunity associated with the potential effectiveness of vitamin D receptors. These include the treatment of many diseases, including rheumatoid arthritis and psoriasis, as well as many diseases [34].

Glutathione concentration measurement

Result shows the mean ± morbidity of the GSH level as the results showed a significant decrease in the level of GSH in the serum of people with rheumatoid arthritis in healthy people as in Figure (2).

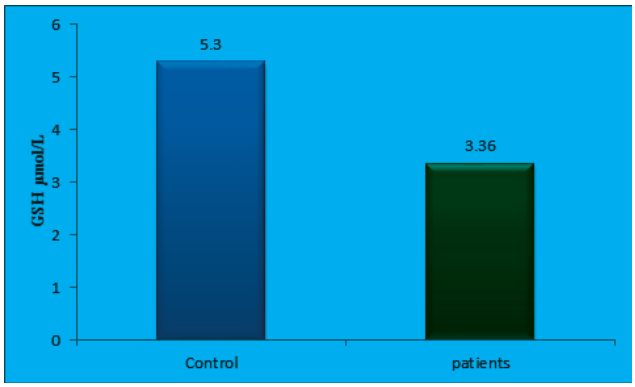

Figure (2): - Glutathione level in serum samples of study and control groups

In its study, Al-Maamory (35) reported a significant decrease in the level of glutathione in the serum of people with rheumatoid arthritis compared to healthy subjects, which is consistent with the results under study.

The low level of glutathione is due to several reasons, including the increase in the rate of consumption, which is one of the most important non-enzymatic antioxidants in the removal of free radicals and their products, transforming from the effective form to the ineffective form. The sulfur group in the GSH structure is a low-efficient factor. Between sulfur and hydrogen (SH) and the power of kin between carbon and hydrogen (CH) in the free radicals so they protect the cellular membranes from damage to free radicals.

One of the reasons for the low level of GSH is a deficiency in the raw materials of its structure, in particular the adjuvant enzyme (the reduced form) nicotine amide adenine deoxyribonide phosphatase, which is the catalyst for the action of the enzyme GRd, which works to restore the effective form of the collation of the ineffective form (36).

Measurement of Mallon dialdehyde

Result shows the mean ± standard deviation of the level of Mallon dialdehyde. The results showed that there was no significant difference in the concentration of Mallon dialdehyde in serum group of infected and healthy people as in Figure (3).

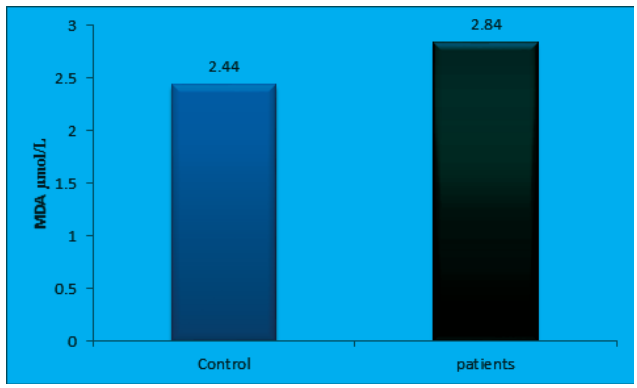

Figure (3): - Concentration of Mallon dialdehyde in serum samples of study and control groups

The results are not consistent with both Abbas (2011) (37) and 2008 (AL-Maamory)(35), who noted in their study that there was a significant increase in the level of MDA in the serum of people with rheumatoid arthritis.

Measurement of uric acid

Result shows the average ± standard deviation of uric acid level. The results showed a significant increase in serum uric acid concentration in people with rheumatoid arthritis compared to healthy subjects as shown in Fig. 4.

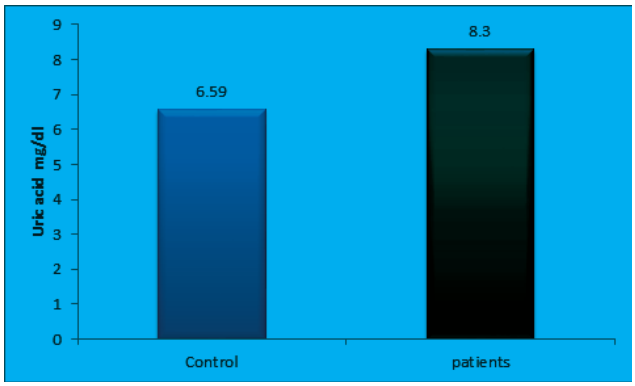

Figure (4): - Concentration of uric acid in the serum samples of the study and control groups

Sheania (2011) reported a significant increase in the level of uric acid in the serum of rheumatoid arthritis patients and this is consistent with the results under study. Das (2014) [39] indicated a rise in serum uric acid levels in people with rheumatoid arthritis.

Ethical Clearance: The Research Ethical Committee at scientific research by ethical approval of both environmental and health and higher education and scientific research ministries in Iraq

Conflict of Interest: The authors declare that they have no conflict of interest.

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