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University of Babylon
College of Science for women Biology department

Evolution of Tumor Necrosis Factor in Women Polycystic Ovary Syndrome

A Research

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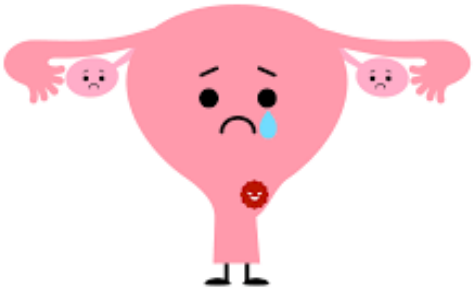

بسم الله الرحمن الرحيم

يرفع الله الذين آمنوا والذين أوتوا العلم درجات

المجادلة:١١

أهداء

الحمد الله أولا ودائماً وابداً...

الى من مسكت يدي بقوة منذ صغري ولم تسمح ان أقع ابداً
التي تحملت كل الاعباء عني الى من سكنت قلبي ونبراسي
الذي ينير دربي """أمي الحبيبة""" أهديك ثمرة تعبكِ

والى والدي وأخوتي وأخواتي الذين لهم الفضل الاكبر في
اكمال مسيرتي الدراسية

الى كل من وقف بجانبي وشجعني وكان سبب لو بسيط في
مساعدتي للوصول الى هنا
الى شهداء وطني الابرار
الى استاذتي المحترمة الدكتورة زينة شاكر
الذي كان لها الفضل في اكمال البحث

Abstract

Polycystic ovary disease is a common hormonal disorder among women due to problems in the ovaries. The exact cause is unknown, but genetic and environmental factors may contribute to its development. In this study, blood samples were collected and serum was separated from them. Samples were taken from infected female college students. This study was conducted To determine the type of immune response to necrosis factor alpha by estimating the concentration of TNFalpha. The number of samples was 40 samples, during the period from 1/11/2022 to 1/3/2023, where immunological tests on blood serums revealed that polycystic ovary disease had an effect in increasing the concentration of necrosis factor alpha and for various The age groups from 19 to 30 years (.002). The study also indicated a higher rate of disease among people with blood type (A +), where the percentage was 38%, in addition to the higher incidence in Babel Governorate than others, where the percentage was 60%.

الخلاصة

ان مرض تكيس المبايض هو اظطراب هرموني شائع بين النساء بسبب مشاكل في المبيض السبب الدقيق له غير معروف لكن قد تسهم العوامل الوراثيه والبيئيه في تطوره .تم في هذه الدراسه جمع عينات الدم وفصل المصل منها تم اخذ العينات من المصابين من طالبات الكليه .اجريت هذه الدراسه لتحديد نوع الاستجابه المناعيه لعامل النخر الفا من خلال تقدير تركيز TNFالفا .حيث كانت عدد العينات 40عينه فتره الممتده مابين 1\11\2022الى 1\3\2023 حيث كشفت الاختبارات المناعيه على امصال الدم ان لمرض تكيس المابيض تأثير في زيادة تركيز عامل النخر الفا ولمختلف الفئات العمريه من 19الى 30عاما (.002) كما اشارت الدراسه الى ارتفاع نسبه المرض لدى مصابين فصيله الدم(A+)حيث كانت النسبه 38% بالاضافه الى ارتفاع الاصابه في محافظه بابل عن غيرها حيث كانت النسبه 60%

Introduction

Pcos,is one in all the forement widespread endocrine issues in ladies of generative age (Manson 2008,,Thomson 2009).which responsible about 44%from miscarriage case that happened at 1st trimester in pregnant women (Glueck 1999)hyperandrogenism and insulin resistance results from heterogeneous conditions in most women with pcos over and above chronics anovulation irregular menses and infertility (Ehrmann 2005,,Norman2007) the environmental factors in addition to genetic background resulting in abroad spectrum of reproduction as well as metabolic defects (Kannel et al 1990) .women can get pcos any time after puberty .most people are diagnosed in their 20s or 30s when they're trying to get pregnant.

Pcos is a hormonal disorder in women that leads to irregular periods of infertility and increased levels of androgen the male sex hormone .women with pcos have a type of low -grade inflammation that stimulates the polycystic ovaries to produce androgens .heredity. androgen excess the ovaries produce abnormally high levels of androgens which leads to hair loss and acne.

the symptoms of pcos include
menstrual cycle disturbance and features of hyperandrogenism .hirsutism .acne.some women only experience menstrual problems or are unable to conceive or Both Macrophages play an important role in the immune regulation of pcos because they are anti-infective cells in the body's natural immune response and essential antigen presenting cells (APC)in specific immunity.in thin pcos patients there were more macrophages and proinflammatory factors in adipose tissue.macrophages can release cytokines and chemokines into the bloodstream(such as lL-6,IL-10,IL18,MIF,,and TNF-α),,resulting in systemic ,chronic low-grade inflammation cytokines are small secreted proteins released by cells that have a specific effect on interactions and communication between cells .(Jun ming chang 2007)altered circulating inflammatory cytokines are associated with anovulatory polycystic ovary syndrome .(Anes at 2007)there are both proinflammatory cytokines and anti - inflammatory cytokines .the anti-inflammatory cytokines are a series of immunoregulatory molecules that control the proin flammatory cytokine response major anti-inflammatory cytokines include interleukin (IL)-1 receptor antagonist IL-4, IL-6, TNF-α),.(steven M at el 2000).

What are the complications of PCOS?

Diabetes type II ,Hypertension , Cardiovascular problems, Cervical cancer , Women with PCOS often have problems getting pregnant (fertility).

risk factors:
Diagnosis of ovarian cysts in the following cases:
• hormonal problems. These drugs are fertiility drugs that help with ovulation, such as clomiphene, or the drug letrozole (Femara).
• Pregnancy. The follicle, during pregnancy, remains present. It may increase in size in some cases.
• Endometriosis. Some tissue can stick to the ovary and form a cyst.
• Severe infection in the pelvis. If the infection spreads to the ovaries, it can cause cysts to form.
• Previous ovarian cysts. Possible formation of more cysts.

Ovarian cysts are not a common condition, but they may cause complications in those affected. These complications include:

Ovarian torsion. The ovaries may move due to large cysts. This leads to an increased risk of painful ovarian torsion. If this occurs, you may experience sudden and severe pelvic pain, nausea and vomiting. Ovarian torsion can also reduce or stop blood flow to the ovaries altogether.
Cysts rupture. A cyst's rupture (rupture) can cause severe pain and bleeding inside the pelvis. The larger the cyst, the more likely it will rupture.

Materials and method:

1. The study included 40 women (patients and control) with different Ages from1-11-2022 to 1-3-2023 aTer recording information about patients.
2. Blood samples: 5ml of blood were taken from pa<ent and isolated serum for immunological study.
3. Immunological study : TNF level were determined aTer separation of serum (5 mL) blood samples were placed in plastic tubes at 3000 rpm centrifuge and the serum patients were stored at -4 ° C to freeze and collect them to determine the concentration of TNF by ELISA according to the manufacturer's instructions For the kit.

Statistical Analysis:

The results of the statistical analysis were compared between females with PCOS and controls using a One-Wy ANOVA table below the level of significance 0.05 using the U.S. Census (SPSS26) (Niazi, 2004).

Results and discussion:

The current study was conducted on 20 women suffering from polycystic ovary syndrome and 20 women as a control for all ages from different cities for the period from 1/11/2022 to 1/3/2023. The highest percentage of disease was found in the age group [19-22] years. It was the highest rate of 58%, followed by the age group [23-26] the lowest incidence rate in the age group [27-307]was 5% (Fig.1).

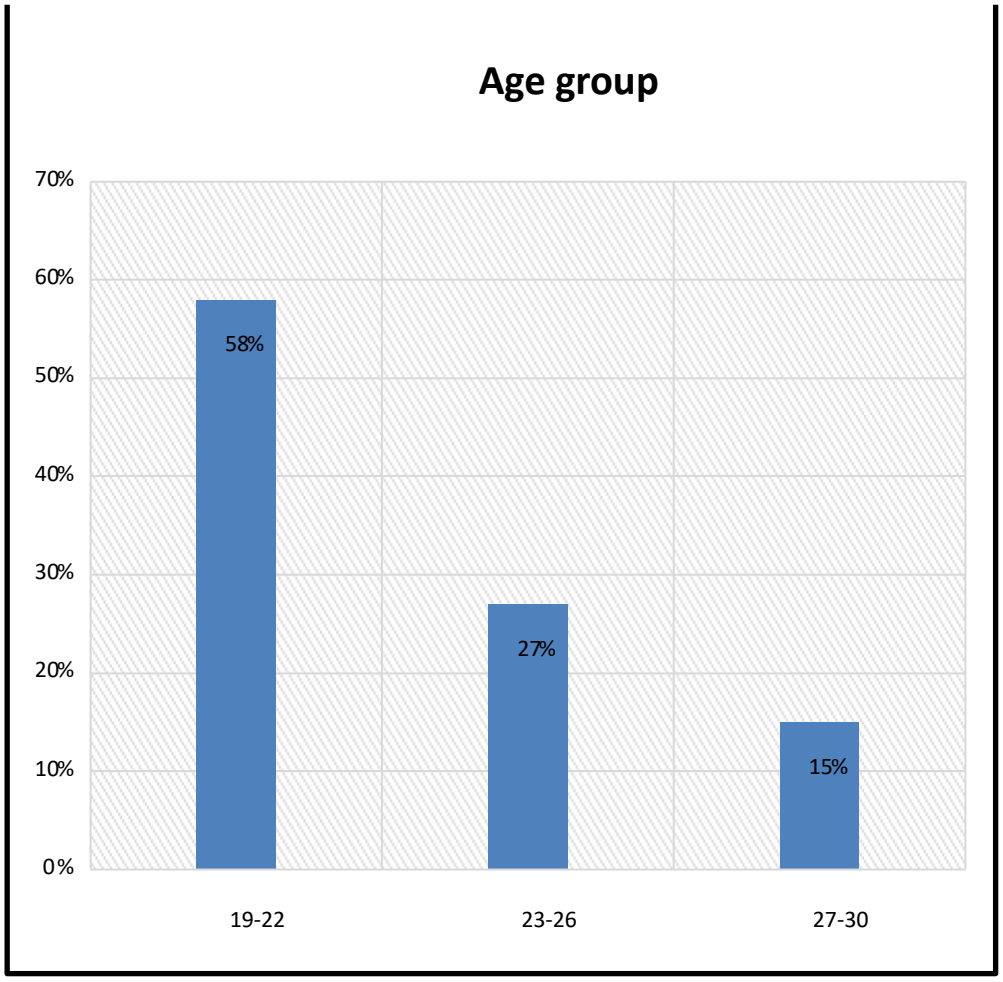

Figure (1): Distribution of study population according to Age group

From (figure 1), we note that women with PCOS at the age of 19-22 have a rate of 58%, meaning that they are more likely to develop the disease than women at the age of 23-26, as it is 27% and higher than the age group of 27-30 It is 15%, because the body in this age group shows a disorder in hormones and they have insulin resistance; This means that the body cannot use insulin well, as insulin levels build up in the body and may cause androgen levels to rise.

The current study showed that the population of study variation according to blood group (A+, AB+ , B+ and O+) ,the highest percentage appeared with A+ group about (38%) ,while the lowest in B+ (Fig. 2).

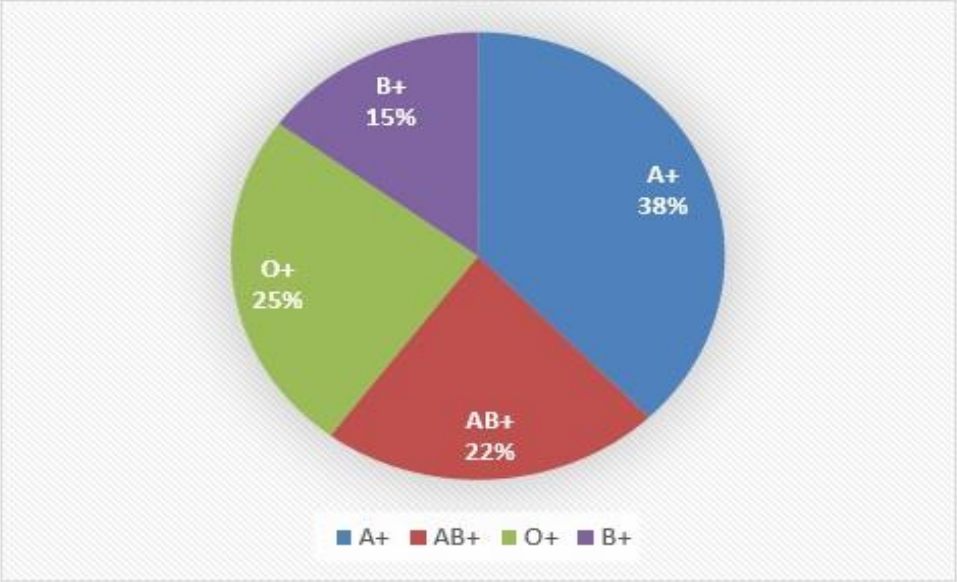

Figure (2): Distribution of study population according to Blood group.

In (Fig. 2) it shows the relationship of blood types to people with polycystic ovary disease. There are studies that say that people with blood group O + are more likely to be infected than others. But in the current research, it was shown that there is no relationship between blood types and polycystic ovary syndrome, as polycystic ovaries is caused by an increase in fats and sugars in the body As a result of the wrong diet, gaining excess weight, and some hormonal disorders, as this existing research is not compatible with these studies.

The study popula/on recorded from many ci/es in middle of Iraq. Four cities included (Babylon, Karbala, Najaf and Baghdad) with the highest percent showed in Babylon (60%) (Fig. 3).

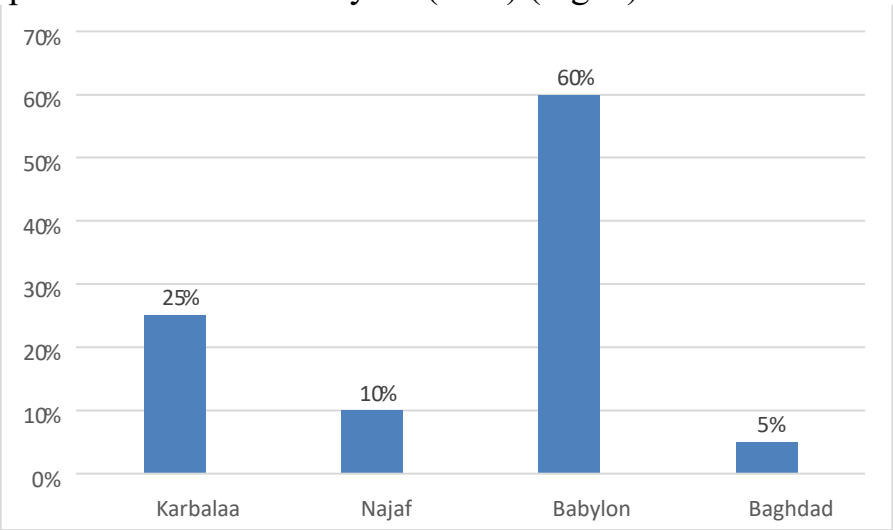

Figure (3): Distribution of study population according to city

The results of the current study increased significantly (P <0.05) in the level of concentration of TNF and for all age groups of patients compared to control its subsidiaries through the use of technology calibration absorbance linked immunoassay
Enzyme - Linked Immunosorbent Assay (ELISA), and the highest its levels appear at the age group of 27-30 (table 1).

Table (1):The level of IL-6 in patients with polycystic ovary syndrome

Sample type	Age group	Concentration of TNF		P *value* (≤ 0.05)
		Mean	Std. Deviation	
patient	19-22	77.0944691	31.91563347	.002 *
	23-26	95.7244017	36.74988366	
	27-30	170.2070000	30.68169768	
	Total	96.6503285	45.45977013	
control	19-22	100.8305975	28.19935907	.023 *
	23-26	81.5359580	34.56762157	
	27-30	45.4793033	1.24797720	
	Total	87.7042435	33.35355153	
*significant difference under P *value* (≤ 0.05) by ANOVA				

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