

Research on the Oxidative Stress Status of Patients with Phlegm-Damp Polycystic Ovary Syndrome and the Intervention of Traditional Chinese Medicine

Yanjun Dong

Chengdu University of Traditional Chinese Medicine, Chengdu 611137, China.

Abstract: Objective: To study the oxidative stress status of patients with phlegmatic polycystic ovary syndrome and the effect of important interventions. **Methods:** Sixty patients with phlegm-damp polycystic ovary syndrome admitted to our hospital between January 2021 and January 2022 were selected. According to the random number table method, the patients were divided into control group (n=30) and observation group (n=30), the control group was treated with metformin hydrochloride tablets, and the observation group was treated with the formula of Jia Wei Qi Gong Wan, and the levels of basal sex hormones (LH, E2), FPG and FINS were compared before and after treatment between the two groups. Serum SOD, MDA, GSH-Px levels before and after treatment, Chinese medicine evidence score before and after treatment. **Results:** Before treatment, the levels of basal sex hormones, FPG and FINS were compared between the two groups ($P > 0.05$), and after treatment, the levels of basal sex hormones, FPG and FINS were better in the observation group than in the control group ($P < 0.05$). Before treatment, the serum SOD, MDA and GSH-Px levels of patients in both groups were compared ($P > 0.05$), and after treatment, the serum SOD, MDA and GSH-Px levels of patients in the observation group were better than those in the control group ($P < 0.05$). Before treatment, the TCM evidence points of patients in the two groups were compared ($P > 0.05$), and after treatment, the TCM evidence points of patients in the observation group were lower than those in the control group ($P < 0.05$). **Conclusion:** Patients with phlegm-damp polycystic ovary syndrome have shown remarkable results with herbal interventions, which is worth promoting.

Keywords: Phlegm-Damp Polycystic Ovary Syndrome; Oxidative Stress State; Herbal Intervention; Intervention Effect

1. Introduction

Patients with polycystic ovary syndrome (PCOS) are characterized by hirsutism, obesity, and infertility, they are often associated with more long-term complications, including metabolic syndrome and atherosclerotic disease, which pose a serious threat to their physical and mental health. The incidence of polycystic ovary syndrome is increasing, with a current incidence of up to 18% in women of childbearing age, and has become a major cause of menstrual irregularities in adolescent women and infertility in women of childbearing age [1]. Oxidative stress is a state of imbalance between oxidation and antioxidation triggered by the excessive production of free radicals by the body, or the reduced ability of the body to scavenge free radicals, which causes tissue damage in patients and is a common factor in secondary diseases. Modern research has revealed that oxidative stress is present in the physiopathological processes of various diseases. As clinical research continues, it has been found that patients with polycystic ovary syndrome also experience oxidative stress, and it is hypothesized that this condition is related to the influence of inflammatory signaling pathways, so the clinical treatment of patients can be carried out for this reason [2]. It has been found that although the treatment system of Western medicine is

perfect, the treatment is single, has a high recurrence rate, and can bring greater side effects to patients, while the interventional treatment of Chinese medicine can enhance the clinical results of patients with high safety. In this study, the authors selected 60 patients with phlegm-damp polycystic ovary syndrome admitted to our hospital between January 2021 and January 2022, aiming to analyze the effect of phlegm-damp polycystic ovary syndrome patients under the application of Chinese herbal medicine intervention, which is described below [3,4].

2. Materials and Methods

2.1 General Information

Sixty patients with phlegm-damp polycystic ovary syndrome admitted to our hospital between January 2021 and January 2022 were selected. According to the random number table method, they were divided into control group (n=30) and observation group (n=30), the control group was treated with metformin hydrochloride tablets, while the observation group was treated with the formula of Jia Wei Qi Gong Wan [5]. The general information of the patients in both groups is shown in Table 1.

Table 1 Comparison of general information of patients in the two groups

Group	Number of cases	Age group Age	Average age	Disease duration Years	Average duration of illness
Observation group	30	21-43	28.15±7.64	1-7	3.89±1.03
Control group	30	20-43	28.10±7.61	1-6	3.86±1.01
X ² /t	-		0.025		0.114
P	-		0.980		0.910

2.2 Methods

The control group was treated with metformin hydrochloride tablets, and the observation group was treated with the formula of Jia Wei Qi Gong Wan [6].

The usage of Metformin (State Drug Quantifier H33020526 Zhejiang Guoguang Biopharmaceutical Co., Ltd.): 1 tablet/time, 3 times/d.

Plus Flavor Qigong Pill Formula: The formula is composed of 18g Xian Ling Spleen, 18g Semen Cuscutae, 15g Atractylodes Macrocephala, 15g Poria, 15g Radix Astragali, 12g Salviae Miltiorrhizae, 12g Rhizoma Ligustici Chuanxiong, 12g Tangerine Red, 12g Radix Panax Notoginseng, 12g Atractylodes Macrocephala, 9g Fructus Crataegus, 9g Shen Qu, 9g Radix Rehmanniae, 9g Huangzen, 6g Glycyrrhiza Uralensis, 6g Huang Lian. Dosage: On the fifth day after the complete elimination of the patient's menstruation, take Plus Flavor Qigong Pill, one sachet in the morning and one sachet in the evening, while the menstruation needs to be stopped, every 21 is a course of treatment, a total of three menstrual cycles need to be treated [7].

2.3 Observed Indicators

Compare the basal sex hormone (LH, E2), FPG, FINS levels before and after treatment between the two groups. Serum SOD, MDA, GSH-Px levels before and after treatment, Chinese medicine evidence score before and after treatment.

2.4 Statistical Processing

SPSS 21.0 was used to process the data using X²/t checks, and P < 0.05 indicates statistical significance.

3. Results

3.1 Comparison of Basal Sex Hormone, FPG and FINS Levels before and after Treatment between Two Groups of Patients

Before treatment, the basal sex hormone, FPG, and FINS levels were compared between the two groups (P > 0.05). After treatment, the basal sex hormone, FPG, and FINS levels in the observation group were better than those in the control group (P < 0.05), see Table 2.

Table 2 Comparison of basal sex hormone, FPG, and FINS levels before and after treatment between the two groups (±s)

Group	Number of cases	LH (mIU/ml)		E2 (pg/ml)		FPG (mmol/L)		FINS (μU/ml)	
		Before treatment	After treatment	Before treatment	After treatment	Before treatment	After treatment	Before treatment	After treatment
Observation group	30	3.05±0.8	10.92±1.6	40.56±10.15	53.65±11.38	4.03±0.3	5.05±0.4	7.02±1.0	9.35±1.46
Control group	30	3.11±0.89	4.23±1.0	40.13±8.9	45.65±10.6	4.11±0.3	5.82±0.5	7.08±1.0	15.65±2.1
t	-	0.266	18.496	0.174	2.815	0.873	5.963	0.222	13.110
P	-	0.792	0.000	0.863	0.007	0.386	0.000	0.825	0.000

3.2 Comparison of Serum SOD, MDA and GSH-Px Levels before and after Treatment between Two Groups of Patients

Before treatment, the serum SOD, MDA, and GSH-Px levels of patients in both groups were compared (P > 0.05). After treatment, the serum SOD, MDA and GSH-Px levels of patients in the observation group were better than those in the control group (P < 0.05), see Table 3.

Table 3 Comparison of serum SOD, MDA and GSH-Px levels before and after treatment between the two groups (±s)

Group	Number of cases	SOD (U/L)		MDA (nmol/ml)		GSH-Px (uU/l)	
		Before treatment	After treatment	Before treatment	After treatment	Before treatment	After treatment
Observation group	30	93.65±9.68	58.43±7.16	5.06±1.15	14.68±3.2	261.65±30.6	163.21±21.49
Control group	30	93.81±9.76	81.37±13.6	5.01±1.19	10.65±2.1	260.45±30.6	217.56±26.49
t	-	0.064	8.138	0.112	5.644	0.115	8.727

P	-	0.949	0.000	0.911	0.000	0.909	0.000
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3.3 Comparison of the TCM Evidence Points of the Two Groups of Patients

Before treatment, the TCM symptom scores of patients in both groups were compared ($P > 0.05$). After treatment, the TCM evidence points of patients in the observation group were lower than those in the control group ($P < 0.05$), as shown in Table 4.

Table 4 Comparison of TCM evidence points between the two groups ($\pm s$) (points)

Group	Number of cases	Before treatment	After treatment
Observation group	30	19.62 \pm 2.31	10.16 \pm 2.35
Control group	30	19.71 \pm 2.26	12.76 \pm 2.41
t	-	0.153	4.231
P	-	0.879	0.000

4. Conclusion

Oxidative stress refers to the fact that after the body is stimulated, active substances are synthesized and dysfunctional signaling pathways are involved, resulting in abnormal metabolic regulatory diseases in patients. Due to excessive formation of oxidized free radicals or the presence of scavenging barriers, which play an important role in mediating IR and apoptosis, SOD belongs to common antioxidant enzymes in the body, which can scavenge free radicals, alleviate the degree of cell damage and can repair cells. MDA belongs to lipid oxidation end products, which can assess the peroxidation capacity of reactive oxygen species into, and GSH-Px belongs to a peroxidolytic enzyme, which can scavenge oxygen radicals and protect the function of the body. The results of this study found that before treatment, the patient's SOD, MDA, and GSH-Px levels were abnormal, indicating that the patient had an oxidative stress state. The reason for the effective improvement of SOD, MDA, and GSH-Px levels after treatment with Gaji Qigong Pill is that the main effect of ginseng is to promote normal lipid metabolism, which can reduce blood cholesterol and lipid levels. In addition, ginseng can also play a role in enhancing heart contraction, which is beneficial to play an anti-arrhythmic effect and protect the capillary function of the heart. Ginsenoside in ginseng can enhance the anti-stress effect and strengthen the stress capacity in the organism. The β -eucalyptol in *Atractylodes macrocephala* can play an antioxidant stress response. β -eucalyptol can regulate gastrointestinal motility in both directions, and its ability to promote gastrointestinal motility significantly resists the stress response of gastrointestinal function. Radix Panax, *Atractylodes macrocephala* and *Rhizoma tangerine* can play the effect of drying dampness and dispelling phlegm, among which *Atractylodes* can increase the peritoneum's ability to absorb water. The fluid in the abdominal cavity can be accelerated by lymphatic or blood circulation of the special cabinet, elevating the blood volume, achieving diuresis and regulating the peritoneal capillaries, and the aromatic herbs and Shen Qu can eliminate stagnation. Chuanxiong can have the effect of invigorating blood and moving Qi, which can completely eliminate stagnation and relieve the patient's symptoms. Chuanxiong can also enter the liver meridian, which can enhance the draining and draining effect of the liver meridian. At the same time, it is also able to move Qi. When Qi moves, blood runs more easily, and when blood moves, stagnation disappears, and when stagnation disappears, pain is reduced. Poria as well as licorice can neutralize drugs, where the neutralizing effects of licorice include moderating drug properties, two-way regulation, monitoring drug toxicity, and correcting taste and flavor effects. Modern pharmacology also found that licorice can play a harmonizing property, which can enhance the effect of drugs and reduce their toxicity.

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