Saudi Journal of Biological Sciences (2017) 24, 241–245

King Saud University

Saudi Journal of Biological Sciences

www.ksu.edu.sa
www.sciencedirect.com

ORIGINAL ARTICLE

Effects of human chorionic gonadotropin combined with clomiphene on Serum E_2, FSH, LH and PRL levels in patients with polycystic ovarian syndrome

Huang Yonggang, Lu Xiaosheng, Huang Zhaoxia, Chen Yilu, Lv Jiqiang, Zhang Huina *

Reproductive Medicine Center, The Second Affiliated Hospital of Wenzhou Medical University, Wenzhou, Zhejiang 325000, China

Received 18 June 2016; revised 31 August 2016; accepted 2 September 2016
Available online 9 September 2016

KEYWORDS

Human chorionic gonadotropin;
Polycystic ovarian syndrome;
E_2;
FSH;
LH;
PRL

Abstract *Objective:* Effects of human chorionic gonadotropin combined with clomiphene on serum E_2, FSH, LH and PRL levels in patients with polycystic ovarian syndrome were analyzed.

Methods: 90 patients with polycystic ovarian syndrome treated from January 2015 to March 2016 were randomly and evenly divided into control group and observation group. Patients in the control group were only treated with clomiphene. On the basis of the treatment in control group, human chorionic gonadotropin was added in the treatment of observation group. The changes of E_2, FSH, LH, PRL levels were compared between two groups before and after the treatment. Clinical curative effects of patients in the two groups was evaluated. Adverse reactions during treatment in two groups were observed and recorded. The incidence of adverse reactions was calculated.

Results: Serum E_2, FSH, LH and PRL levels in the two groups decreased significantly after treatment compared with that before treatment. The difference is statistical significant ($P < 0.05$). After the treatment, E_2, FSH, LH and PRL levels in the observation group were lower than that in the control group and the difference is statistical significant ($P < 0.05$). Total effective rate was 64.44% in the control group and 93.33% in the observation group. There were statistically significant difference in clinical curative effects in the two groups ($P < 0.05$). Different degrees of adverse reactions were found in both groups during treatment, such as nausea, vomiting, anorexia, liver dysfunction. There were 2 cases of nausea, 2 cases of vomiting, 3 cases of anorexia and 1 case of liver dysfunction from the 45 patients in control group. The total incidence of adverse reactions was 17.78% (8/45). There were 1 case of nausea, 1 case of vomiting, 1 case of anorexia and no liver dysfunction from the 45 patients in observation group. The total incidence of adverse reactions was

* Corresponding author.
E-mail address: huina.zh201@163.com (Z. Huina).
Peer review under responsibility of King Saud University.

Production and hosting by Elsevier

http://dx.doi.org/10.1016/j.sjbs.2016.09.011

6.67% (3/45). The total incidence of adverse reactions in the observation group was significantly higher than that in the control group and the difference was not statistically significant ($P > 0.05$).

Conclusion: Combined use of human chorionic gonadotropin can significantly reduce serum E_2, FSH, LH and PRL levels, improve clinical curative effects and reduce the incidence of adverse reactions. Human chorionic gonadotropin has high application value on the treatment of polycystic ovary syndrome.

1. Introduction

Polycystic ovary syndrome (PCOS) is a common disease of obstetrics and gynecology. It was mainly caused by anovulation endocrine disorders with clinical manifestations of diversity, including irregular menstruation, infertility, and so on. According to statistics (Shi and Quan, 2015; Jiang et al., 2012; Wei et al., 2013), the incidence of polycystic ovary syndrome in women of childbearing age was as high as 10% and it brings seriously negative affect to the healthy and family life of patients. Drug treatment is the common method of clinical treatment. Analysis on effects of human chorionic gonadotropin combined with clomiphene on serum E_2, FSH, LH and PRL levels during the treatment was conducted in this study. The results are reported as follows.

2. Materials and methods

2.1. General information

90 patients with polycystic ovarian syndrome treated from January 2015 to March 2016 were randomly and evenly divided into control group and observation group. Patient enrollment criteria: patients clinically diagnosed with polycystic ovary syndrome, not using hormonal drugs recently. Exclusion criteria: patients with liver and kidney dysfunction. This study was agreed by the patients and approved by our hospital ethical committee. There were no significant difference between the two groups in general clinical materials, including age, weight, height, infertility type and BMI, and so on ($p > 0.05$), and it was strongly comparable. Data are shown in Table 1.

2.2. Methods

Treatment in the control group: Patients were only treated with clomiphene. Clomiphene was given orally with the dose of 100 mg/d (specification: 50 mg × 20particle/box, approval number: national medicine approved number H31021107, manufacturer: Shanghai Hengshan Pharmaceutical Co., Ltd.). The treatment was stopped after 12 d of continuous medicine taken. It would be extended to three menstrual cycles, if the patient was not pregnant. Treatment in the observation group: Clomiphene was combined with human chorionic gonadotropin in the treatment. Clomiphene was given orally with the dose of 100 mg/d. The diameter of follicular was observed and if it is larger than 18 mm, intramuscular injection of 100 mg human chorionic gonadotropin was given. If the patient was not pregnant, the treatment was continued for three menstrual cycles.

Serum E_2, FSH, LH and PRL levels was determined by immune analyzer after patients in the two groups taking drug for 3 menstrual cycles.

2.3. Observed indicators

2.3.1. E_2, FSH, LH and PRL were chosen as observed indicators

Venous blood was extracted from all patients at 9 am in their fasting state. After centrifuge separation, the separated serum was placed in a thermostat of −40 °C for storage. Enzyme linked immunosorbent assay (ELIA) method is applied to determine the levels of E_2, FSH, LH, PRL in serum.

2.3.2. Clinical curative effect criterion (Chen et al., 2013; Li and Wu, 2015; Chen and Wei, 2015; Wang et al., 2014; Liu, 2014)

According to the menstrual recovery degree, curative effects could be divided into the following four grades. Healing-Menstruation returned to normal level during treatment or one year later, and the patient got pregnant successfully. Excellent-Menstruation returned to normal level during treatment or one year later, but the patient were failed to get pregnant. Improved-The function of ovulation was normal, but the amount of menstruation is less than normal during treatment or within one year. Failure-menstrual cycle was serious

Table 1 Comparison of general clinical materials in two groups.

Materials	Control group ($n = 45$)	Observation group ($n = 45$)	t/χ^2 Value	P Value
Average age (years)	35.46 ± 4.12	35.02 ± 4.57	0.4797	0.6326
Average height (cm)	168.23 ± 3.42	167.09 ± 4.18	1.4160	0.1603
Average weight (kg)	64.18 ± 4.02	65.04 ± 3.17	1.1269	0.2629
Infertility type				
Primary infertility	33 (73.33)	30 (66.67)	3.7479	0.0529
Secondary infertility	12 (26.67)	15 (33.33)		
BMI (kg/cm^2)	25.02 ± 2.69	25.97 ± 2.49	1.7386	0.0856