

## **Study on Treatment of Polycystic Ovarian Syndrome with Infertility by Combined Therapy of Chinese Herbal Medicine and Compound Cyproterone Acetate**

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**Abstract Objective:** To evaluate the effect of combined therapy of Chinese herbal medicine and compound cyproterone acetate (CPA) in treating non-obesity polycystic ovarian syndrome (PCOS) and to explore its mechanism in improving withdrawal ovulation.

**Methods:** Eighty-six patients of non-obesity PCOS, typed as Shen-deficiency with blood stasis Syndrome or Shen-deficiency with Phlegm-Dampness Syndrome by Syndrome Differentiation in traditional Chinese medicine, were randomly divided into three groups: (1) The TCM group (n=26) was treated with Chinese drugs for 6 menstrual cycles; (2) The western medicine (WM) group (n=30) was treated with 1 tablet of CPA for 21 days, with the treatment beginning from the 5th day of menstruation. The treatment was given for 3 menstrual cycles by repetitious medication, which stopped and restarted on the 5th day of withdrawal bleeding. Then the ovulation promoting therapy was applied by using clomifene citrate and human chorionic gonadotropin (CC/hCG) for 3 menstrual cycles; (3) The TCM-WM group (n=30) was treated with the medications used for the above two groups. The menstrual cycle, the volume and duration of the menstruation, as well as the improvement of acne and pilosis [Ferrinian-Gallway (F-G) scoring] were observed after 3 cycles ended. Moreover, condition of ovulation was monitored by B-ultrasonography at the 4th-6th cycle and status of pregnancy was observed.

**Results:** Compared with before treatment, the blood level of luteinizing hormone (LH) and testosterone (T) in all 3 groups after treatment significantly decreased ( $P < 0.05$ ), with its ratio to follicle-stimulating hormone (LH/FSH) recovered to normal, but without markedly change in levels of FSH, estradiol (E2) and prolactin (PRL). The menstrual cycle in most patients got regular and acne significantly alleviated ( $P < 0.05$ ), and the improvement of infrequent menstruation and acne was better in the WM group and the

TCM-WM group than that in the TCM group, but pilosis showed no significant improvement in all three groups. The periodical ovulation rate in the TCM-WM group (73.1%) and the WM group (68.3%) was significantly higher than that in the TCM group (40%). The pregnancy rate in the TCM-WM group (53.8%) was significantly higher than that in the other two groups (26.1% and 25% respectively, all  $P < 0.05$ ).

Conclusion: Using combined therapy of TCM and composite CPA followed by ovulation promoting agents of TCM and WM to treat patients of non-obesity PCOS could relieve the clinical symptoms, improve the abnormal blood level of sex hormones and significantly elevate the pregnancy rate.

### Substitution of Acupuncture for HCG in Ovulation Induction

By using human menopausal gonadotropin (HMG) and human chorionic gonadotropin (HCG), fairly good clinical therapeutic efficacy has been obtained in the treatment of infertility. However, difficulties are brought about due to the ovarian hyperstimulation syndrome (OHSS) easily induced by these two drugs. Therefore, we attempted to use acupuncture instead of HCG in the induction of ovulation from 1989 to 1992, and satisfactory therapeutic effect was achieved as reported in the following.

### General Data

Ten patients were hospitalized with confirmed diagnosis of infertility and totally observed for 11 menstrual cycles (one patient had recurrence of OHSS for 2 times). Their ages ranged from 27 to 30 years with an average of 29 years. After treatment by HMG, all patients manifested OHSS in varying degrees. In accordance with the criteria for grading of OHSS issued by WHO, among these 11 menstrual cycles 4 cycles were mild (ovarian slight enlargement less than 5 cm with symptoms of slight malaise of lower abdomen); 7 were moderate (marked enlargement of ovary with nausea, vomiting and abdominal distension); no severe case occurred (extreme enlargement of ovary with hydrothorax, ascites, pycnemia and electrolyte disturbance). In order to prevent the exacerbation of OHSS caused by combined use of HMG and HCG, acupuncture was used after HMG treatment to replace HCG for the ovulation induction in 11 menstrual cycles of these patients.

### Therapeutic Method

1.5-3 cun long filiform needles (no. 28-30) were used. The acupoints used for needling were Zigong (Extra 16), Shenshu (UB 23), Ciliao (UB 32), (the above acupoints were used bilaterally) and Guanyuan (Ren 4). Baohuang (UB 53) and Zhongji (Ren 3) were selected according to the signs and symptoms as adjuvant points. The manipulation techniques included twirling, rotating, lifting and thrusting. Reinforcing method was used in Shenshu point and the remaining points were punctured by reducing manipulation. The needling sensation should be transmitted toward both sides of lower abdomen. When arrival of Qi, retained the needles for 15 min. and manipulated the needles

intermittently during the retaining period to enhance the stimulation. Moxibustion with moxa stick was used for some of these acupoints.

### Observation of Therapeutic Effect

Criteria for assessment of therapeutic effect: Therapeutic effect was appraised mainly by comparison of ultrasonic B examination after needling with that before treatment and referred to the score of cervix uteri and basal body temperature to sit judgment on ovulation. Ovulation occurred within 24 h after 1st needling was considered as marked effect; ovulation within 72 h after 2-3 times of needling was effective; no ovulation occurred after 72 h after more than 3 times of needling was scored as ineffective.

### Results of Treatment

Of the 11 menstrual cycles, marked effect was shown in 5 cycles, effective in 5 cycles and failed in 1 cycle. Among the 10 markedly effective and effective cycles, ovulation was induced in 2 cases after needling and diagnosed pregnancy by blood HCG assay and ultrasonography. In 9 of the 10 cycles treated with acupuncture for ovulation induction without using HCG and other drugs, the symptoms of OHSS were significantly remitted or even disappeared. Only in one cycle, HCG (with dosage less than for ovulation) was used after needling to maintain the function of corpus luteum and resulted in exacerbation of OHSS and finally remitted by drug treatment.

### Typical Case

Fang, 27-year-old, suffered from polycystic ovary syndrome. She was unpregnant after married 2 years and the menstruation was only 1-2 times a year. The basal body temperature was monophasic. No effect was observed using clomiphene and then treated with HMG. From the day 5, for bleeding due to withdrawal of progesterone, intramuscular injection of HMG was given at a dose of 150 U once a day for 8 days. The score of cervix uteri was 12 mark. The ultrasonogram showed that the size of right ovary was 9.6 cm x 7.8 cm x 4.6 cm and the left side was 9.2 cm x 7.2 cm x 4.7 cm. Both sides of ovary had 10-20 follicles with maximum size 1.8 cm. In order to avoid severe OHSS, acupuncture was used instead of HCG for ovulation induction after stopping HMG treatment. On the next day after the first needling, the basal body temperature elevated from 36.3°C to 36.8°C and the score of cervix uteri fell from 12 mark to 9 mark, and ultrasonic B examination suggested that part of the follicles were ovulated. After the 19th day of ovulation, the blood concentration of HCG started rising and after 40 days the blood level of HCG reached to 35.6 ng/ml. The ultrasonogram showed that the diameter of embryonic sac was 1.5 cm and early pregnancy was diagnosed.

### Discussion

It was reported in literature that using HMG-HCG in the induction of ovulation, the ovulatory rate was about 70%-90%, but the incidence of OHSS might be 10%-15.4% and even life-threatening in the severe case. At present, there were no satisfactory

measures for the prevention and remission of OHSS. In most reports, it is considered that when OHSS inclines to occur, stopping injection of HCG is the effective way to avoid severe OHSS. However, stopping HCG would not only discontinue the ovulation of HCH, but also gave up the already developed follicles. Our clinical practice demonstrated that acupuncture is effective in ovulation induction and also the remission of OHSS induced by HMG. Furthermore, we also noted that in most OHSS patients enlarged ovaries and numerous developed follicles were revealed. As a result of excessive follicles developed, dysplasia of ova and insufficiency of corpus luteum often occurred, thus leading to uneasy pregnancy after ovulation. So it is reasonable to infer that using some Chinese drugs benefiting the function of corpus luteum or using certain amount of progesterone as supplementary treatment after acupuncture, the pregnancy rate could be raised.

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