



Traditional Chinese Medicine (TCM) in the Management of Infertility/Subfertility

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Introduction

Infertility is typically defined as an inability to get pregnant after a year of unprotected intercourse. It is estimated that infertility affects one in seven couples in the UK although the incidence of infertility varies considerably across the world. In fact, zero chance of conceiving only occurs if both tubes are completely blocked, or if there is a premature menopause in the female partner; or if there is complete lack of sperm in the male partner. Most infertility is really some degree of subfertility.

The main causes of infertility/subfertility:

- Ovulatory and hormonal disorders (including polycystic ovarian syndrome, premature ovary failure).
- Unexplained.
- Endometriosis.
- Blocked or damaged fallopian tubes (including previous infections of the reproductive organs, PID/STD, scars from previous surgery).
- Male factor (including low sperm count, poor morphology and poor motility).

Other uncommon causes of infertility/subfertility:

- Scarring of the uterus or birth defects.
- Hostile cervical mucus.
- Antibodies that attack sperm, thyroid disorders.

Main risk factors of infertility/subfertility:

- Age - a woman's chances of becoming pregnant decline dramatically with age.
- Emotional factors, such as depression and stress.
- Occupational and environmental risks, such as prolonged exposure to radiation, certain chemicals, high temperatures, microwave emissions, etc.
- Alcohol intake and smoking.
- Obesity or being underweight.

One in every six couples needs specialist help because of their fertility problems. They often face expensive, time-consuming and frustrating treatments once they decide to embark on conventional medical intervention. It is said that fertility is a matter of chance.



Any treatment that offers as much as 25% chance of conception each cycle is as good as can be expected by reference to normal fertility statistics. However, the introduction and popularization of traditional Chinese medicine (TCM) in the western world including the UK, provides new options and hope for infertile/subfertile couples.

Improvements in conception rates and pregnancy outcomes with traditional Chinese medicine (TCM) — clinical research studies

TCM has a long history of treating infertility in both women and men, and reports of successful cases have made a significant part of Chinese gynecology/obstetrics textbooks. Recently clinical research studies have further supported that Chinese medicine is a useful tool for improving natural pregnancy and live birth rates by treating infertility in both women and men. When used in conjunction with assisted reproductive technology, TCM treatment increases the number of oocytes retrieved; improves the quality of eggs and sperms; enhances the chances of clinical pregnancy and live birth rates; and minimises the symptoms caused by IVF treatment. Furthermore, TCM treatment reduces the chances of miscarriages, and relieves some of the symptoms associated with pregnancy with no adverse effects.

Acupuncture has been shown in many clinical studies to improve fertilization rate and pregnancy outcome. In a randomized controlled double-blind cross-over study the efficacy of acupuncture as an adjunct to IVF was evaluated. A significantly lower amount of gonadotropins was required when IVF was combined with standard acupuncture. Most importantly a 70% pregnancy rate was achieved with standard acupuncture and IVF, compared to 25% pregnancy rate with IVF only (Quintero R, et al. 2004). In a recent case study, infertile female patients undergoing IVF treatment were divided into two groups: (1) a treatment group with a minimum of two sessions of acupuncture 5 to 7 days prior to and on the day of embryo transfer, and (2) a control group without acupuncture treatment. Amazingly, it was reported that after only a few sessions of acupuncture, the treatment group showed an increased number of oocytes retrieved, and a significantly lower number of first trimester miscarriages, although both groups showed similar fertilization rates, pregnancy or implantation rates, and endometrial thickness on the day of HCG administration (Khorram NM et al. 2005). In a similar but much bigger clinical trial (160 participants), acupuncture was given before and after embryo transfer in 80 patients and a similar-sized control group without any supportive therapy. The clinical pregnancy rate was 42.5% in the acupuncture group but only 26.3% in the control group, indicating the usefulness of acupuncture treatment for improving pregnancy rate after assisted reproductive technology (Paulus WE, et al 2002). In another larger clinical study, the acupuncture treatment significantly enhanced the pregnancy and live birth rates and decreased the ectopic pregnancy and miscarriage rates both in IVF poor responders (with elevated FSH and longer history of infertility) and in IVF patients with good prognosis (Magarelli PC et al. 2004). These data uniquely support a definitive role of acupuncture in IVF.

A review published in *Human Fertility* in 2003 by Xu X focuses on the application of TCM in infertile patients, and provides a critical reflection on the efficacy and safety of



selected Chinese herbal formulas. It has been claimed that some herbal formulas produce high clinical pregnancy rates with few or no side effects, as well as improve the general wellbeing of patients. The efficacy and safety of Chinese herbal medicine in the treatment of infertility were examined in recent clinical research studies. In a controlled clinical study infertile patients were treated with Clomiphene either alone or in combination with herbal medicine, and were followed up for one year. Although no significant differences were found in ovulation rate, pregnant rate and miscarriage rate, the Chinese medicine group showed significant improvement in menstruation, follicle development, uterine blood supply, and endometrium thickness compared with the group treated with clomiphene alone. Patients in both groups showed similar minimal side effects which did not need medical intervention. The results indicate that herbal medicine is superior to Clomiphene in restoring regular menstruation, improving uterine blood circulation and may thus improve pregnancy rates (Xia YW et al. 2004). Chinese herbal medicine was used to treat 76 infertile women with polycystic ovarian syndrome (PCOS) and 31 matched patients were treated with Clomiphene. The herbal group showed an improved menstruation with a pregnancy rate of 65.7% whereas the Clomiphene group did not show any effect on the menstruation. The pregnancy rate was only 25% (Hua L et al 2003). Zhu WX (1993) recruited 53 infertile women with endometriosis and treated them using Chinese herbal medicine. A significant relief of the symptoms related to endometriosis (such as dysmenorrhea and menstrual disorder) was found after 3.5 months treatment. Twenty two of the ovarian chocolate cysts became smaller and 16 disappeared. The pregnancy rate was 45%. Usuki S, et al. (2002) examined the effect of tokishakuyakusan, a Chinese herbal medicine, in women with luteal insufficiency and in women with normal menstrual cycles. They demonstrated that the herbal medicine improved luteal insufficiency, and had no adverse effect on hormonal levels in either blood or urine. No clinical side effects were detected.

The efficacy of Chinese medicine in treating male infertility has also been demonstrated. A general improvement of the number and quality of sperm, specifically in the ultrastructural integrity of spermatozoa after acupuncture treatment was reported by several authors (Fischl F, et al. 1984; Zheng Z 1997; Bartoov B, et al 1999; Siterman S, et al; Pei J et al 2005). In a prospective controlled and blind study, nineteen patients with semen abnormalities in concentration, morphology and/or progressive motility without apparent cause were randomized into two groups and submitted to acupuncture and moxa treatment at the therapeutic (Study Group) and the indifferent points (Control Group), respectively, for 10 weeks. The patients of the Study Group presented a significant increase in the percentage of normal-form sperm compared to the Control Group (Gurfinkel E et al 2003). In a case study, effects of acupuncture on idiopathic male infertility were investigated. Twenty two patients with idiopathic male infertility who failed previous intracytoplasmic sperm injection (ICSI) treatment were treated with acupuncture twice weekly for 8 weeks before embarking on another ICSI treatment. Fast sperm motility was significantly improved, and the percentage of sperm with normal morphology significantly increased. Most importantly, the fertilization rates were significantly increased compared with the previous ICSI treatment (Zhang M et al. 2002).



Chinese herbal medicine was successfully used to treat infertile couples with anti-sperm antibody (Liao DL et al. 2004; Yu AL, et al. 2004). One hundred and three infertile male patients with positive anti-sperm antibody participated in a clinical trial and were randomly divided into 3 treatment groups: (1) herbal medicine and IUI, (2) herbal medicine alone, (3) IUI alone. The anti-sperm antibody became negative in over 76% of the herbal medicine group, along with a decreased number of CD4 lymphocytes. The pregnancy rate was significantly higher in the herbal medicine and IUI group compared with the other two (41.18% versus 20.59% and 11.43%) (Lian F et al 2002). The results indicate that a combination of herbal medicine and IUI is effective in the treatment of infertility with positive anti-sperm antibody.

Relief of pregnancy related symptoms and reduction of chances of miscarriages with TCM—clinical research studies

Both acupuncture and herbal medicine have been demonstrated to safely relieve some pregnancy-related symptoms. Rosen T, et al. (2003) reported that nerve stimulation therapy (acupuncture) is effective in reducing nausea and vomiting and promoting weight gain in symptomatic women in the first trimester of pregnancy. In a recent prospective quasi-randomised controlled clinical study, 30 pregnant women were allocated at random into two groups: control (without acupuncture), and acupuncture group. The acupuncture group showed a significant reduction in insomnia compare with the control group (da Silva JB, et al. 2005). Acupuncture, and acupressure to a lesser extent, are effective, non-pharmacological methods for the treatment of hyperemesis gravidarum (HG), as shown in a recent paper by Habek D, et al. (2004). A clinical study published in BMJ showed that acupuncture and stabilising exercises constitute efficient complements to standard treatment for the management of pelvic girdle pain during pregnancy, and acupuncture was superior to stabilising exercises (Elden H, et al. 2005).

A study was conducted in and around Cape Town, South Africa, at two primary obstetric facilities and in the antenatal clinics of two secondary hospitals. It was reported that a majority of Xhosa-speaking women follow indigenous healing practices for both themselves and their babies because of the need to "strengthen" the womb against sorcery, to prevent childhood illnesses, and to treat symptoms they perceive that biomedical services would not be able to treat (Abrahams N, et al 2002). Seventy pregnant women with nausea and vomiting participated in a randomized double blinded controlled study and were randomly divided into two groups: (1) treatment with ginger (a commonly prescribed herb) and (2) control. During a 5-month period, it was shown that nausea vomiting episodes decreased significantly in the ginger group compared with the control group. No adverse effect of ginger on pregnancy outcome was detected (Vutyavanich T et al 2001).

Case studies showed that herbal medicine can be useful in the treatment of miscarriages. Twenty patients with early symptoms of threatened miscarriage (such as vaginal bleeding, abdominal cramps) in the 7-8th week of gestation were treated with a classical herbal formula combined with psychological consultation. In 16 patients the symptoms disappeared, indicating the use of herbal medicine in threatened miscarriages (Sun F et al

1999). In a further case study, forty patients with a history of recurrent miscarriage were treated with Chinese herbal medicine. Thirty six of them successfully continued the pregnancy over the first trimester which was the time miscarriages usually occurred (Sun F and Yu J 1999).

Conclusions

TCM has a long history in the management of infertile patients. Although its primary basis rests on empirical evidence as well as case studies, recent clinical research supports its therapeutic modalities in infertility. The aim of TCM treatment in infertility is to improve conception rates, to improve pregnancy outcomes, to reduce ectopic pregnancy rates, to decrease miscarriage rates and to improve live birth rates. To make the best use of traditional Chinese medicine, it is important to give medication according to both the western and traditional diagnoses.

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