
Acupuncture for infertility: a case report

Georgios Papadopoulos PhD¹,
Evangelia Samara PhD¹, Minas
Paschopoulos PhD²
¹Department of Anaesthesiology
and Postoperative Intensive
Care, Faculty of Medicine, School
of Health Sciences, University of
Ioannina, Greece
²Department of Obstetrics and
Gynaecology, University Hospital
of Ioannina, Greece

Running title: Acupuncture for infertility

Keywords: infertility, anti-mullerian hormone (AMH),
acupuncture

Introduction

Infertility is the inability of a sexually active couple trying to conceive for a year. Worldwide, 8-12% of couples face infertility problems, while the percentage keeps increasing. 20% of cases are due to both male and female factors (1,2).

Problems that are likely to occur in men are abnormal sperm, low sperm motility or low sperm count. Causes can be genetic factors, long-term steroid use, age, obesity, stress, testicular inflammation, cystic fibrosis, diabetes and other diseases. In women the most common factors are polycystic ovary syndrome, hyperprolactinemia, thyroid problems, hormonal imbalance, poor quality, cancer, AIDS, etc. Age, obesity and eating disorders also increase the risk of infertility issues (1,2).

Case report

We present a case of a 30-year-old woman, who presented to the acupuncture clinic with inability to conceive for two years. She had been offered IVF, but wanted to try acupuncture. Her medical history did not reveal any particular pathology except for intense stress and insomnia. Her menstrual cycle, as well as gynecological examination and ultrasound were normal. Laboratory hormonal testing was normal, with the exception of the anti-Mullerian hormone which showed a downward trend, with final values of 0.9 and high levels of androstenedione (4618 ng / mL).

The husband was healthy with blood tests, sperm volume and pH, sperm viscosity and motility, as well as sperm count within normal limits.

The couple did not report any use of drugs or smoke, any alcohol abuse and did not have infections.

After informed consent, acupuncture was performed, with 25mmx25mm needles, at the acupuncture points: Liv3, Sp6, Sp9, S36, LI4, EX Hin 1, S25, S28, CV10, CV, CV4, CV3, GB20, GV14, GB30, B25, B132.

Simultaneously, infrared rays were applied to the abdomen for 20 minutes. A total of 10 acupuncture sessions were performed as often as once a week.

Corresponding author:

Evangelia Samara
Faculty of Medicine, School of
Health Sciences, University of
Ioannina, Greece.
S. Niarchos Ave., Ioannina,
Greece
e-mail: gelysamara@yahoo.com
tel.: +306972325749

The patient then reported a positive pregnancy test and 9 months later she delivered a healthy baby boy.

Discussion

In our case, acupuncture was effective in treating infertility in a woman with low anti-Mullerian hormone (AMH).

AMH is produced in the follicles and its serum levels indicate the reserve of the woman's ovaries. Its levels decrease with age and decrease of the ovarian reserves, while the number of developing follicles visible on the ultrasound decreases. For women of productive age, hormone levels are categorized into four groups: Normal (1.0-3.0 ng / mL), normal low (0.7-0.9 ng / mL), low (0.3-0.6 ng/mL), and very low (less than 0.3 ng/mL). (1.2)

A review of randomized trials by Jang S et al found that acupuncture could improve clinical pregnancy rates, anti-Mullerian hormone (AMH) and antral follicle count (AFC) rates and the number of recovered eggs in women with poor ovarian response.

However, it is difficult to conclude that acupuncture is more effective than conventional therapy, as more clinical trials are needed (3).

Acupuncture has been used to treat infertility issues, both in males and females, in all steps of IVF. (4)

Three possible mechanisms for the effects of acupuncture on infertility have been documented.

1. Acupuncture may mediate the release of neurotransmitters, (3) which in turn may stimulate the secretion of gonadotropin-releasing hormone, thereby affecting the menstrual cycle, ovulation, and fertility. (4)
2. Acupuncture can augment uterine blood flow by suppressing sympathetic uterus activity. (5)

3. Acupuncture can stimulate the production of endogenous opioids, which can inhibit central nervous system outflow and the biological response to stress. (6)

In a randomized controlled trial by Guven et al, three acupuncture sessions before and after IVF significantly increased pregnancy rates. Acupuncture was also found to significantly reduce stress levels that occurred before ET embryo transfer (7)

A systematic review by Liu Yun et al found that the pregnancy rate improved significantly with acupuncture treatment compared to control group. Subgroup analysis, such as polycystic ovary syndrome, fallopian tube infertility, ovulation disorder, and other factors, also showed significant improvement. In addition, ovulation rate and endometrial thickness increased significantly. The combination of acupuncture and western medicine also showed significant improvement, while the side effects of acupuncture were significantly less. (8)

In the study of Amina Zakaria et al, acupuncture, in the follicular phase of the menstrual cycle in patients with polycystic ovary syndrome who underwent in vitro fertilization, was found to have a positive effect. The number of embryos transferred, and pregnancy rates were significantly higher compared to the control group, but had no effect on antimullerian hormone concentrations. (9)

However, in a multicenter study by Xiao-Ke Wu et al in Chinese women with polycystic ovary syndrome, acupuncture alone or add-on to clomiphene failed to increase births as compared to control acupuncture and placebo. (10)

The number of sessions required varies considerably. In the case we described, acupuncture was effective with 10 sessions, once a week in the treatment of infertility in a woman with low antimullerian hormone (AMH) and mild hypothyroidism that gave birth to a healthy baby. In the case of Zhu

et al, a 34-year-old patient with primary infertility for 3 years and low antimüllerian hormone (0.94 ng / mL) required 32 cycles of treatment, one treatment weekly for a period of 1 year, extending the cycle by 1 day at 4, normally developing follicles up to 20 mm with good quality and normal hormone levels. However, the final outcome of the conception is not mentioned. (11)

In another report by Zhu J et al, acupuncture in a young couple with infertility improved the quality of a man's sperm and ovarian function, balancing the endocrine system and hormones and leading to pregnancy. The same acupuncture points were used in both patients. (12)

Despite the positive results of the case described, the quality of the evidence from the literature is poor not only because final results are missing by a proportion of the research projects, but also because the results are contradictory. There is a need for more research to determine the effectiveness of acupuncture in fertility treatment. (13)

References

1. Nordqvist C. Infertility in men and women; Medical News Today. MediLexicon, Intl. 2018. www.medicalnewstoday.com/articles/165748 .
2. Cedars M, Jaffe RB. Infertility and Women. *The Journal of Clinical Endocrinology & Metabolism*, 2005; 90(4): E2.
3. Jang S, Kim KH, Jun JH, You S. Acupuncture for in vitro fertilization in women with poor ovarian response: a systematic review. *Integr Med Res*. 2020 Jun; 9(2):100395.
4. Shi J. Boosting Fertility and Conception with Chinese Herbs. *Acupuncture, and Diet*. 2018. www.vitalitymagazine.com .
5. Dharmananda S. Treatment of ovarian cysts with Chinese herbs. 1997 www.itmonline.org
6. Zhu J, Arsovska B, Sterjovska-Aleksovska A, Kozovska K. Acupuncture Treatment of Subfertility and Ovarian Endometrioma. *Open Access Maced J Med Sci*. 2018; 6(3):519-522.
7. Guven PG, Cayir Y, Borekci B. Effectiveness of acupuncture on pregnancy success rates for women undergoing in vitro fertilization: A randomized controlled trial. *Taiwan J Obstet Gynecol*. 2020; 59(2):282-286.
8. Yun L, Liqun W, Shuqi Y, Chunxiao W, Liming L, Wei Y. Acupuncture for infertile women without undergoing assisted reproductive techniques (ART): A systematic review and meta-analysis. *Medicine (Baltimore)*. 2019; 98(29):e16463.
9. Altutunji AZ, Liu L, Cai J, Wang Z, Gao Y. The effect of acupuncture on anti-müllerian hormone and assisted reproduction outcome in Polycystic Ovary Syndrome patients undergoing in vitro fertilization. *J Pak Med Assoc*. 2019 Aug; 69(Suppl 3) (8): S4-S8.
10. Wu XK, Stener-Victorin E, Kuang HY, Ma HL, Gao JS, Xie LZ et al. Effect of Acupuncture and Clomiphene in Chinese Women With Polycystic Ovary Syndrome: A Randomized Clinical Trial. *JAMA*. 2017; 317(24):2502-2514.
11. Zhu J. Acupuncture treatment for infertility due to low antimüllerian hormone levels. *Indian J Case Reports*. 2017; 3(3):159-160.
12. Zhu J, Arsovska B, Kozovska K. Acupuncture Treatment for Fertility. *Open Access Maced J Med Sci*. 2018; 6(9):1685-1687.
13. Miner SA, Robins S, Zhu YJ, Keeren K, Gu V, Read SC et al. Evidence for the use of complementary and alternative medicines during fertility treatment: a scoping review. *BMC Complement Altern Med*. 2018; 18(1):158.