

Acupuncture treatment for infertility due to low antimüllerian hormone levels

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ABSTRACT

Antimüllerian hormone (AMH) is produced in the ovarian follicles. The levels of the hormone on a blood test show woman's ovarian reserves which determine the capacity of the egg cells in the ovaries needed for conception. We report a case of a 33-year-old female diagnosed with the primary infertility for 3 years due to unsuccessful natural conceiving. The patient had regular menstrual cycle with duration of only 1 day. The patient's blood test indicated an insufficiently grown follicles needed for conception, low AMH levels (0.94 ng/mL), and high androstenedione (458 ng/mL) levels. The patient underwent 32 treatment cycles, one treatment every week, over a period of 1 year. After the treatment with acupuncture and infrared lamp, her menstrual cycle was lengthened to 4 days, and the blood analysis showed normally grown ovarian follicles up to 20 mm with good quality and normal hormone levels. According to the theories of the traditional Chinese medicine, this state of the health arises from obstructed energy Qi flow in the liver meridian. This obstruction is created due to some lifestyle changes, which in turn, interrupts the blood flow in the uterus and ovaries and contributes to an imbalance of the hormones. During this treatment, acupuncture points located on the Spleen, Bladder, Heart, Liver, Large Intestine, Gall Bladder, and Du Mai meridians were used.

Key words: *Acupuncture, Infertility, Treatment, Traditional Chinese medicine*

Many women in today's society decide to get pregnant in a later stage of their lives. However by this time, their ovarian reserve decreases which lead to infertility in some case [1]. The ovarian reserve determines the capacity of the egg cells in the ovaries needed for conceiving [2]. As the number of ovarian follicles decreases in the aging process, antimüllerian hormone (AMH) levels also decrease. This decrement leads to increase in the follicle-stimulating hormone (FSH) and basal estradiol levels leading to accelerated growth of the new egg cells, shortening of the length of the follicular phase and decreased length of the menstrual cycle [3]. The AMH is produced in the ovarian follicles and its serum levels show woman's ovarian reserve. Its highest levels are in the period between 23 and 25 years of age and lowest in the postmenopausal period. In the most productive period of women, the levels of the hormone can be divided into four groups: Normal levels (1.0-3.0 ng/mL), low normal (0.7-0.9 ng/mL), low (0.3-0.6 ng/mL), and very low (<0.3 ng/mL) [4].

The low ovarian reserve still remains idiopathic in 90% of the cases while other possible causes are chromosomal and nonchromosomal anomalies [5]. Additional factors that may have an influence are chronic smoking, obesity, ovarian surgery, genital tuberculosis, pelvic infections, chlamydia, endometrioma, radiotherapy, chemotherapy, etc. The treatment options in cases of low ovarian reserve in the Western medicine include controlled ovarian stimulation, treatment with agonists and antagonists, *in vitro* fertilization (IVF), oral contraceptive pills, androgen, and growth hormone supplementations [6].

The traditional Chinese medicine (TCM) exists for more than 5000 years and treats variety of gynecological conditions, including infertility. TCM stimulates the body to heal on its own, with its own potentials; it regulates the hormone levels and improves the low ovarian reserve with stimulation of the blood flow in the ovaries [7]. The treatment with acupuncture, as a part of the TCM can help the body to function more efficiently and help patients to become fertile. Acupuncture can be added to natural IVF treatment to increase the chances of getting pregnant but it also can be used in the stimulation of egg production in patients who do not want to take fertility medications. Acupuncture successfully restores and stimulates the flow of the Qi energy through the meridians in the body [8]. Although the treatment takes some time and patience to achieve the intended purpose, the positive results are inevitable.

Only a few studies about the efficacy of acupuncture in cases with low ovarian reserve and low AMH levels are available including personal experience of acupuncture treatment for infertility by some patients [9-15]. We are reporting a similar case report.

CASE REPORT

A 33-year-old woman came to our clinic after being diagnosed with infertility for the past 3 years. Before coming to our clinic for TCM and acupuncture, the patient visited couple of doctors and specialists who suggested IVF, but she refused. The patient was with regular menstrual cycle with duration of only 1 day with no previous pregnancies, normal blood pressure and blood sugar, normal appetite

and no previous illnesses and conditions. The male partner's semen analysis was normal. The blood test analysis indicated to inadequate grown follicles needed for fertilization, low AMH levels - 0.94 ng/mL and high androstenedione - 4.58 ng/mL. Other hormones were within the normal range - progesterone 0.319 ng/mL, estradiol 45.9 pg/mL, luteinizing hormone 5.16 mIU/mL, FSH 8.39 mIU/mL, dehydroepiandrosterone sulfate -SO4 307 ug/dL, prolactin 10.01 ng/mL, and testosterone 51.95 ng/dl. Genital swab tests for *Chlamydia trachomatis*, *Mycoplasma hominies*, and *Ureaplasma urealyticum* were negative. Her serum HIV, hepatitis B virus, and hepatitis C virus tests were also negative.

The patient underwent 32 treatment cycles over a period of 1 year, one cycle once a week. Treatments were done in our clinic for TCM and acupuncture in Skopje, Macedonia by an acupuncture specialist in. The duration of each cycle was 30-45 min, done on a room temperature. For the acupuncture treatment, we used fine sterile disposable needles (Wuijiang City Medical and Health Material Co., Ltd.) on the points located on the Spleen, Bladder, Heart, Liver, Large Intestine, Gall Bladder, and Du Mai meridians. The acupuncture points EX-HN-1 (SiShenCong), Li4 (HeGu), St25 (Tianshu), Rn10 (Xian wan), Sp9 (Yinlingquan), St36 (ZuSanLi), Sp6 (SanYinJiao), Lv3 (TaiChong), Gb20 (FengChi), Du14 (DaZhu), Bl25 (DaChangShu), and Bl32 (Ciliao) were treated with needles sized 0,25 × 25 mm, and the points Rn7 (Yinjiao), Rn4 (Guan Yuan), Rn3 (Zhongji), and St28 (Shuidao) were treated with needles sized 0,30 × 50 mm. Along with the acupuncture treatment, infrared lamp was used locally on the areas where the needles were inserted. During the acupuncture treatment, she has not been taking any other medication. After the treatment with acupuncture and infrared lamp, her menstrual cycle was lengthened to 4 days; the blood test showed normally grown follicles up to 20 mm and normal hormone levels. Seven follicles with dimension of 6 mm were noticed.

DISCUSSION

With low ovarian reserve, the natural conception is not possible [16]. The shortened menstrual cycle also indicates to low ovarian reserve. According to theories of the TCM, this condition arises from obstructed energy Qi flow in the liver meridian caused due to some lifestyle changes (life in community, environmental problems, and seclusion), which in turn, interrupts the blood flow to the uterus and ovaries and contributes to an imbalance of the hormones. The acupuncture treatment corrects the imbalances in the reproductive system, regulates the menstrual cycles, notifies vital essence, improves the blood circulation, balances Yin and Yang, restores ovarian function, decreases systematic inflammations, and regulated the hormone secretion.

The treatment also helps to improve the microcirculation, invigorate the blood circulation, and resolve the created masses. It has a big impact on the hypothalamus, pituitary gland and the ovaries and ultimately has an effect on follicles production and ovulation, as well as in patients undergoing IVF; it directly improves the number of follicles. Acupuncture works in a way that changes the blood supply in the ovaries by dilation of the arteries and by increasing the blood flow so that the ovaries ultimately receive larger quantity

of hormonal stimulation [7,8,16]. A study done for ovarian reserve, including 270 patients, showed that electroacupuncture has a great effect on the AMH by improving its levels, increasing the number of the eggs and the quality of the embryo [17].

CONCLUSION

Acupuncture as a treatment for infertility in this case with low AMH levels and low ovarian reserve showed very positive and satisfying results. Thus, the acupuncture treatment can be effective which helps the body to heal on its own natural way.

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