Clinical Report

Acupuncture for the treatment of diminished ovary reserve

针灸治疗卵巢储备功能低下

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ABSTRACT

Objective To share 20 cases of women with diminished ovary reserve (DOR) and low Anti-Müllerian Hormone (AMH), who had unsuccessful in-vitro fertilization (IVF) trials and to whom the author has successfully treated.
Methods Twenty women with DOR had gone through the failed IVF from 1 to 5 times. The acupuncture protocol consists of electroacupuncture, manual acupuncture, acupressure and sliding-cupping, which are the multiple interventions. The acupoints were used based on 5 phases of the menstrual cycle. The electroacupuncture was used twice a week in the follicle phase and the acupuncture without the electricity was used once a week in the luteal phase. Most of them had been treated for three menstrual cycles.
Results All of 20 women got pregnant by IVF (17 casese) or naturally (3 cases).
Conclusion Acupuncture might improve IVF outcomes for women with DOR by acupuncture treatment for three months or help them to receive naturally.

KEY WORDS: acupuncture; DOR; AMH; IVF; eletroacupcunture

Ovarian reserve plays a crucial role in achieving pregnancy following any treatment in sub fertile women[1]. Anti-müllerian hormone (AMH) is now recognized as a principal regulator of early follicular recruitment from the primordial pool. AMH value is a good predictor for the number of oocytes, which can be retrieved during in vitro fertilization (IVF) [2,3]. Recently fertility clinics worldwide have been using AMH together with antral follicle counts as the indicator for diminished ovarian reserve (DOR)[4]. Fertility specialist doctor Bentin-Lay from the Danish fertility clinic states: an AMH below 10 pmol/L and less than 8 oocytes aspirated with maximal stimulation in women up to 40 years old indicates a DOR. DOR occupied a significant percentage of couples treated in IVF units (10–24%)[4]. Women with DOR have more difficulty in achieving pregnancy generally[1].

Acupuncturists worldwide have been utilizing acupuncture to assist patients who were undergoing IVF or trying to get pregnant naturally. Acupuncture has become an emerging therapy used adjunct to IVF[5]. Women find acupuncture treatments an empowering adjuvant and this self-actualizing step is a part of the process of taking back control[6].

DOR is not identified in traditional Chinese medicine[7]. There have been a couple of trials about acupuncture improving the IVF/ICSI pregnancy success rate for women with DOR or Primary Ovary Failure (POF) in China and Korea[7–9]. For instance, Zhou[7] gave 15 sessions of acupuncture for 30 DOR patients with 33 DOR patients in the control group. The acupuncture group had much better effect ($P<0.01$).

The author would like to present and analyze 20 cases of women with DOR, who had unsuccessful IVF trials behinds themselves and were successfully treated in the author's clinic in Copenhagen, between January 2014 and September 2016, and to share and discuss them with acupuncturists around the world.

CLINICAL DATA

General data

Twenty patients with AMH <10 pmol/L and less than 6 follicles from the previous egg retrieval in IVF/ICSI, age from 28 to 40 years old with an average of 38, diagnosed as DOR，were treated in the author's clinic in Copenhagen, Denmark from

January 2014 to September 2016. The BMI were 18 to 31 with an average of 22.2, the infertile time were 1.5 to 2.5 years and the failed IVF/ICSI times were 1 to 5. Two of them came to the author immediately after they decided to have their second child, because the author helped them to get their first child. 34% of their previous IVF/ICSI cycles had been canceled due to the lack of the follicles after one week's follicle stimulating hormone (FSH) stimulation. All, apart from two of them, had regular menstruation. They were healthy, apart from being stressed and worried, because they were told that they had low egg reserves and might have difficulty in getting pregnant.

METHODS

The acupuncture protocol included electricalacupuncture, manual acupuncture, acupressure, sliding-cupping, which were the multiple interventions. The author treated them with a set of basic points according to their menstrual cycles, and some extra points were added based on TCM syndrome differentiation.

Needles: Sterile, silver-handle, single-use needles from Huacheng, with the size of 0.25 mm×25 mm were used. Ear needles were from ASP (France). All acupoints were selected bilaterally. Acupoints and locations were based on *WHO Standardized Acupuncture Point location*.

Acupoints' selection: in phase 1 (cycle 1-3 th day): no acupuncture was given if women have no imbalance. In phase 2 (cycle 4-7th day): Bǎihuì (百会 GV 20), Zúsānlǐ (足三里 ST 36), Sānyīnjiāo (三阴交 SP 6) were chosen，electroacupuncture were given on Guīlái (归来 ST 29) and Zǐgōng (子宫 EX-CA 1). If blood stagnation exists, Cìliáo (次髎 BL 32), Qūquán (曲泉 LR 8), Yánglíngquán (阳陵泉 GB 34) can be added, one acupuncture session was given. In phase 3 (cycle 8–13 th day): Bǎihuì (百会 GV 20), Zúsānlǐ (足三里 ST 36), Sānyīnjiāo (三阴交 SP 6), Hégǔ (合谷 LI 4)，Tàichōng (太冲 LR 3) were chosen and electroacupuncture were given on Guīlái (归来 ST 29) and Zǐgōng (子宫 EX-CA 1), two or more acupuncture sessions of the treatment were given (The phases are based on the 28 days' cycle. When a woman's cycle is longer than 28 days, more sessions should be given in the phase 3). During the egg transfer, the same acupoints were chosen as the Phase 3, Zhōngjí (中极 CV 3), Shénmén (神门 HT 7) and Tàixī (太溪 KI 3) were added, and no electroacupuncture was applied. In phase 4 (cycle 14–17 day): the same acupoints were chosen as Phase 3, Shénmén (神门 HT 7) and Tàixī (太溪 KI 3) were added, one acupuncture session of the treatment was given. The quick needling was given at Shènshù (肾俞 BL 23) and BL 32 from phase 2 to phase 4. In phase 5 (cycle 18 to 28 th day), Gānshù (肝俞 BL 18), Píshù (脾俞 BL 20), Shènshù (肾俞 BL 23), BL 32, SP 6, Liè quē (列缺 LU 7) and Jiāoxìn (交信 KI 8) were chosen, and the quick needling on ST 36 was given before the patient lied down on her stomach. Two sessions of the treatment were given.

Acupoints prescription according to syndrome differentiation: for spleen deficiency, Xuèhǎi(血海 SP 10) were added, kidney deficiency, Zhàohǎi (照海 KI 6) were added, for liver stagnation, LR8, and GB34 were added. When patients could not come weekly, auricular acupoints were embaded on Shénmén (神门 TF 4), Nèifēnmì (内分泌 CO 18), Nèishēngzhíqì (内生殖器 TF 2), Pízhìxià (皮质下 AT 4), Gān (肝 CO 12) and Shèn (肾 CO 10) (one or more points based on patients' situations), which were just examples, one or more auricular points were chosen based on patients' situations.

Electroacupuncture: electroacupuncture was used in the follicle phase 4 sessions and no electroacupuncture in the luteal phase. D-D model (dilatational wave) and low frequency between 2–5 Hz. The intensity was based on individual sensitivity. The best stimulation was just below the pain threshold. The treatment time was around 30 min. The electroacupuncture was not applied during the first acupuncture session.

Manipulation: even reinforcing and reducing methods was used. After *deqi*, needles were retained for 30 min. with/without electricity. Needling stimulation depends on the patient's sensitivity: the more sensitive the patient is, the less stimulation is used. Each time ended, acupressure was applied on the head for 5–10 min.

Treatments' intervals and sessions: twice a week in the follicle phase and once a week in the luteal phase, 6 times per cycle for the women with menstrual cycle around 28 days. It is important to get one session around the ovulation. When the women's cycle is longer than 28 days, they need more than 6 times per cycle. It was recommended that It was recommended that at least 18-20 sessions of acupucnture treatments in three menstrual cycle before they attpmted a new IVF trial should be given. Some of them might need more sessions.

Sliding-cupping: sliding-cupping was applied on