

Clinical studies on the mechanism for acupuncture stimulation of ovulation.

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Ovulatory dysfunction is commonly seen in gynecology clinic. It may cause infertility, anemia, functional uterine bleeding and a variety of complications. This research according to TCM theory records treating with acupuncture 34 patients suffering from ovulatory dysfunction. Changes in clinical symptoms and some relative targets are reported, plus findings in animal experiments. The theory concerning the generative and physiologic axis of women, this research involved the following points; Ganshu (UB 18), Shenshu (UB 23), Guanyuan (Ren 4), Zhongji (Ren 3), and Sanyinjiao (Sp 6). The reinforcement and reduction of acupuncture enables it to strengthen liver and kidney. Through the Chong and Ren channels it nourishes uterus to adjust the patient's axis function and recover ovulation. Treated on an average of 30 times, the patients' symptoms improved to varying degrees. The marked effective rate was 35.29%, the total effective rate being 82.35%. BBT, VS, CMS, and B ultrasonic picture all improved to some degree. The results also showed that acupuncture may adjust FSH, LH, and E2 in two directions and raise the progesterone level, bringing them to normal. The animal experiments confirmed this result. Results showed that acupuncture may adjust endocrine function of the generative and physiologic axis of women, thus stimulating ovulation. The results of this research will provide some scientific basis for treating and further studying this disorder.

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Auricular acupuncture in the treatment of female infertility

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Following a complete gynecologic--endocrinologic workup, 45 infertile women suffering from oligoamenorrhea (n = 27) or luteal insufficiency (n = 18) were treated with auricular acupuncture. Results were compared to those of 45 women who received hormone treatment. Both groups were matched for age, duration of infertility, body mass index, previous pregnancies, menstrual cycle and tubal patency. Women treated with acupuncture had 22 pregnancies, 11 after acupuncture, four spontaneously, and seven after appropriate medication. Women treated with hormones had 20 pregnancies, five spontaneously, and 15 in response to therapy. Four women of each group had abortions. Endometriosis (normal menstrual cycles) was seen in 35% (38%) of the women of each group who failed to respond to therapy with pregnancy. Only 4% of the women who responded to acupuncture or hormone treatment with a pregnancy had endometriosis, and 7% had normal cycles. In addition, women who continued to be infertile after hormone therapy had higher body mass indices and testosterone values than the therapy responders from this group. Women who became pregnant after acupuncture suffered more often from menstrual abnormalities and luteal insufficiency with lower estrogen, thyrotropin (TSH) and dehydroepiandrosterone sulfate (DHEAS) concentrations than the women who achieved pregnancy after hormone treatment. Although the pregnancy rate was similar for both groups, eumenorrheic women treated with acupuncture had adnexitis, endometriosis, out-of-phase endometria and reduced postcoital tests more often than those receiving hormones. Twelve of the 27 women (44%) with menstrual irregularities remained infertile after therapy with acupuncture compared to 15 of the 27 (56%) controls treated with hormones, even though hormone disorders were more pronounced in the acupuncture group. Side-effects were observed only during hormone treatment. Various disorders of the autonomic nervous system normalized during acupuncture. Based on our data, auricular acupuncture seems to offer a valuable alternative therapy for female infertility due to hormone disorders.

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Direct effects of Chinese herbal medicine "hachuekkito" on sperm movement

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BACKGROUND AND PURPOSE: Chinese herbal medicine, "Hochuekkito" is widely used for male infertility in Japan. There have been many reports concerning its clinical usefulness but very few reports of in vitro experiments studying the mechanism of its effects. In addition to stimulating germ cells, we analyzed its direct effects on sperm using computer assisted semen analyzer (CASA).

MATERIALS AND METHODS: Motile sperm were prepared using swim up technique from semen collected from ten healthy volunteers. Sperm movements (motility, velocity, linearity) were analyzed by CASA after adding either serum containing anti-sperm antibody (ASA) or normal serum with or without Hochuekkito. **RESULTS:** Two hours after adding serum with ASA, the decrease of sperm motility was significantly reduced from 25.1% (92.8% → 67.7%) to 12.5% (92.9% → 80.6%) by adding Hochuekkito. No significant difference in velocity and linearity was observed between two groups. By adding normal serum, any of three parameters differed significantly with or without Hochuekkito. **CONCLUSION:** Protective effects of Hochuekkito on sperm were suggested. Although normal sperm with ASA was used in this report, since the sperm of infertile patients are said to be more fragile, this results imply that direct protective effect is one of the mechanism of Hochuekkito for male infertility

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Effect of acupuncture on sperm parameters of males suffering from sub fertility related to low sperm quality.

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The aim of this prospective controlled study was to assess the effect of acupuncture on the sperm quality of males suffering from sub fertility related to sperm impairment. Semen samples of 16 acupuncture-treated sub fertile patients were analyzed before and 1 month after treatment (twice a week for 5 weeks). In parallel, semen samples of 16 control untreated sub fertile males were examined. Two specimens were taken from the control group at an interval of 2-8 months. The expanded semen analysis included routine and ultramorphological observations. The fertility index increased significantly ($p < \text{or} = .05$) following improvement in total functional sperm fraction, percentage of viability, total motile spermatozoa per ejaculate, and integrity of the axonema ($p < \text{or} = .05$), which occurred upon treatment. The intactness of axonema and sperm motility were highly correlated ($\text{corr.} = .50, p < \text{or} = .05$). Thus, patients exhibiting a low fertility potential due to reduced sperm activity may benefit from acupuncture treatment.

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A substance isolated from *Cornus officinalis* enhances the motility of human sperm

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The effects of a Chinese herb, *Cornus officinalis*, on the motility of human sperm was studied. An aqueous extract was prepared from the dried fruits of the herb and used in this study. The crude extract at a final concentration of 0.5 microgram/micro liter in phosphate buffered saline (pH 7.4) increased sperm motility from 25.8 +/- 7.7% to 42.8 +/- 10.3% (i.e. 68% increase, n = 7), as determined by the computer-aided-sperm-analysis (CASA) method. The crude extract was fractionated by high-performance liquid chromatography (HPLC) into four fractions: C1, C2, C3 and C4. Their effects on sperm motility were further studied by CASA. Only the C4 fraction showed substantial stimulatory effects on sperm motility. At a concentration of 5 ng/microliter, C4 increased the sperm motility from 15.7 +/- 3.8% to 34.5 +/- 6.4% (i.e. 120% increase, n = 6) by CASA and from 14.9 +/- 4.3 to 28.5 +/- 8.1 (i.e. 91% increase, n = 8) by transmembrane migration ratio (TMMR) method. This result suggests that C4 is the active component in *Cornus officinalis* that enhances sperm motility.

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An experimental study on inhibitory effect of Chinese medicine tai-bao on antisperm antibody

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OBJECTIVE: To investigate whether Chinese medicine Tai-bao could inhibit antisperm antibody in experimental mice. **METHODS:** The experimental immunoinfertility mice were due to antisperm antibody induced by injection of human sperm membrane antigens. The experimental immuno-infertile mice used in the present study were divided into four groups including Tai-bao high dose group (46.8 g.kg-1.d-1), Tai-bao low dose group (31.2 g.kg-1.d-1), prednisone group and normal saline group. The enzyme linked immune sorbent assay (ELISA) and microcytotoxic assay were used for detection of antisperm antibody. The change of levels of antisperm antibody before and after treatment, pregnant rate, and the number of implantation were investigated in tested mice. **RESULTS:** The pregnant rates in normal saline group, prednisone group, Tai-bao high dose group and low dose were 38.89%, 47.06%, 70.00% and 75.00% respectively. The rate of pregnancy in Tai-bao low dose group was significantly higher as compared with normal saline group ($P < 0.05$). The rate of implantation in Tai-bao low dose group was significantly higher than that in prednisone group ($P < 0.05$). The results of detection of cytotoxic antibody to sperm showed that cytotoxic percentages in Tai-bao high dose group (63.0 +/- 10.3%) and prednisone group (56.3 +/- 13.7%) were significantly lower ($P < 0.05$ and $P < 0.01$) than that in normal saline group (72.84 +/- 5.05%). **CONCLUSION:** Chinese medicine Tai-bao possesses regulatory effect on reproductive immune function, inhibitory effect on antisperm cytotoxic antibody, and promoting effect on pregnancy.

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Eighty-seven cases of male infertility treated by bushen shengjing pill in clinical observation and evaluation on its curative effect

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Eighty-seven cases of male infertility with semen abnormality were treated and observed by Bushen Shengjing Pill, its curative effect was evaluated with quantitative assessment and analytical comparison comprehensive scoring of semen routine analysis. These patients were treated for one of three courses of treatment, the semen quality was enhanced obviously, the comprehensive semen routine analysis score was enhanced significantly ($P < 0.001$) as compared with that before treatment, the spouse pregnant rate was 56.32% (49/87), and total effective rate was 95.40% (83/87). The result showed that this prescription had bidirectional regulatory function in follicle stimulating hormone, luteotropic hormone, testosterone, corticosterone, and could make the enhanced or reduced hormone level to normal value.

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Experimental study of effect on tonifying kidney herbs in pituitary ovary adrenal gland of androgen sterilized rats

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OBJECTIVE: To observe the effect of tonifying Kidney herbs (TKH) in pituitary, ovary, adrenal gland of androgen sterilized rats (ASR).
METHODS: ASR model was established by injecting testosterone propionate subcutaneously to SD female rats of 9 days age. Morphological and hormonal change of pituitary, ovary and adrenal gland in rats of 100-107 days old before and after feeding TKH extract were observed by light and electron microscope, cell culture immunohistochemical studies and radioimmuno-assay. **RESULTS:** In the ASR groups, there were intracytoplasmic lipid drops, autophagy, vacuole, granulolysis of pituitary gland. There were anovulation apparently and increased the amount of lipid drops in cytoplasm of interstitial glandular cell of ovary. The fatty drops of the reticular zone of adrenal gland decreased, the number of AGNOR ($P < 0.01$) and PCNA ($P < 0.01$) increased significantly. The levels of FSH, LH ($P < 0.05-0.005$) lowered, but the levels of DHA, T ($P < 0.01, 0.05, 0.001$) were raised significantly. Morphological and hormonal change of all RSA returned to normal range after the treatment. **CONCLUSIONS:** The hyperandrogenemia were disturbed by the function of sex gland axis and adrenal in female rats of 9 days old and played an important role in pathogenesis of ASR, the TKH reduced the levels of androgen and induced ovulation through sex gland axis and adrenal level and multi-organ regulation.

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Effects of guizhi-fuling-wan on male infertility with varicocele.

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Thirty-seven infertile patients with varicocele were treated with Guizhi-Fuling-Wan (7.5 g/day) for at least 3 months. Before and after the administration, semen qualities such as sperm concentration and motility were examined, and the varicocele was graded. A varicocele disappearance rate of 80% was obtained with 40 out of 50 varicocele, and improvement of sperm concentration and motility were found in 71.4% and 62.1% of patients, respectively. From these results, Guizhi-Fuling-Wan is considered to be effective for circulation disorders in varicocele as well as semen quality.

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Adjuvant L-arginine treatment for in-vitro fertilization in poor responder patients

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The objective of the present study was prospectively and randomly to evaluate the role of L-arginine in improving uterine and follicular Doppler flow and in improving ovarian response to gonadotrophin in poor responder women. A total of 34 patients undergoing assisted reproduction was divided in two groups according to different ovarian stimulation protocols: (i) flare-up gonadotrophin-releasing hormone analogue (GnRHa) plus elevated pure follicle stimulating hormone (pFSH)(n = 17); and (ii) flare-up GnRHa plus elevated pFSH plus oral L-arginine (n = 17). During the ovarian stimulation regimen, the patients were submitted to hormonal (oestradiol and growth hormone), ultrasonographic (follicular number and diameter, endometrial thickness) and Doppler (uterine and perfollicular arteries) evaluations. Furthermore, the plasma and follicular fluid concentrations of arginine, citrulline, nitrite/nitrate (NO₂-/NO₃-), and insulin-like growth factor-1 (IFG-1) were assayed. All 34 patients completed the study. In the L-arginine treated group a lower cancellation rate, an increased number of oocytes collected, and embryos transferred were observed. In the same group, increased plasma and follicular fluid concentrations of arginine, citrulline, NO₂-/NO₃-, and IFG-1 was observed. Significant Doppler flow improvement was obtained in the L-arginine supplemented group. Three pregnancies were registered in these patients. No pregnancies were observed in the other group. It was concluded that oral L-arginine supplementation in poor responder patients may improve ovarian response, endometrial receptivity and pregnancy rate.

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A preliminary immunopharmacological study of an antiendometriotic herbal medicine, Keishi-bukuryo-gan.

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Changes in the specific antiendometrial IgM antibodies in an endometriotic patient, who were treated with leuproride acetate and in turn with Keishi-bukuyogan, were investigated by the flowcytometric analysis which was developed in our laboratory. The oriental therapy decreased the specific IgM antibody titer gradually and kept the patient symptom-free for more than 7 months without any suppression of serum CA125 and estradiol levels. On the other hand, leuproride acetate therapy suppressed both serum CA125 and serum estradiol levels but not the IgM antibody titer. The results suggest that the specific antiendometrial IgM autoantibody could be a pathogenic molecule in endometriosis and it could also serve as a clinical marker for the oriental therapy of endometriosis.

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