

# Positive effects of acupuncture in assisted reproductive technologies are not mediated by changes in ovarian and endometrial production of estradiol, progesterone, and placental protein 14

Lars G. Westergaard, M.D., Ph.D.,<sup>a</sup> Qunhui Mao, M.D.,<sup>b</sup> Marianne Kroglund,<sup>a</sup> Steen Sandrini,<sup>c</sup> Suzan Lenz, M.D., Ph.D.,<sup>a</sup> and Jørgen Grinsted, M.D., Ph.D.<sup>a</sup>

<sup>a</sup>Fertility Clinic Trianglen, Hellerup; <sup>b</sup>Holistic Acupuncture Clinic, Frederiksberg C; and <sup>c</sup>Sandrini Acupuncture I/S, Varde, Denmark

The present data corroborate previous studies demonstrating a significant beneficial effect of acupuncture in IVF. A final proof of this effect, however, requires larger, prospective, placebo-controlled trials. (*Fertil Steril*® 2006; 85:1368–9. ©2006 by American Society for Reproductive Medicine.)

Confirming the results previously reported by Paulus et al. in 2002 (1), our study reported in this issue of *Fertility and Sterility* (2) supports that acupuncture administered on the day of ET significantly enhances the success rate of IVF treatments. In our study, an additional session of acupuncture on ET day +2 (i.e., closer to the day of implantation) did not significantly affect the outcome but showed an insignificant increase in the rate of early pregnancy loss. Whether this implies a possible harmful effect of repeated acupuncture sessions (3) remains unanswered by the present study but might deserve further investigation.

The biological mechanisms through which acupuncture might enhance fertility remain unclear (4). In our study, we

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Reprint requests: Lars G. Westergaard, M.D., Fertility Clinic, Trianglen, Lundeangsvvej 12, Hellerup DK-2900, Denmark (FAX: 45-3940-7075; E-mail: l.g.westergaard@dadlnet.dk).

actually tried to monitor possible effects of acupuncture on ovarian and endometrial function by measuring E<sub>2</sub>, P, and placental protein 14 (PP14) in serum sampled on the day of oocyte retrieval, day of ET, and on day of ET +2 in the three study groups. The results of these analyses, which were not included in the original article, showed similar levels of hormones among the groups, indicating that the effects of acupuncture are not mediated by changes in ovarian or endometrial endocrinology (Table 1).

Do the results of our study and those of others now supply solid enough evidence to recommend acupuncture as a routine procedure in assisted reproductive technology cycles? “No,” say all three commentators on our article, and they all demand new, sufficiently large, prospective, randomized studies in which the use of placebo acupuncture in the control group is mandatory, before such a recommendation can be considered scientifically sound (3–5). We agree and have recently initiated

**TABLE 1**

**Serum concentrations of E<sub>2</sub>, P, and PP14 on the day of oocyte retrieval, day of ET, and day ET +2 in the three study groups.<sup>a</sup>**

	Oocyte retrieval day			ET day			ET day +2		
	Control	ACU 1	ACU 2	Control	ACU 1	ACU 2	Control	ACU 1	ACU 2
Serum P (nmol/L)	33 ± 3	31 ± 2	37 ± 3	328 ± 25	310 ± 23	386 ± 29	524 ± 37	438 ± 27	568 ± 39
Serum E <sub>2</sub> (nmol/L)	4.5 ± 0.3	4.6 ± 0.3	5.4 ± 0.4	4.5 ± 0.4	4.2 ± 0.3	5.0 ± 0.4	7.5 ± 0.5	7.6 ± 0.5	8.6 ± 0.6
Serum PP14 (μU/m)	2.1 (0*–61)	2.4 (0–31)	1.8 (0–54)	3.9 (0–61)	3.4 (0–33)	3.9 (0–43)	5.8 (0–78)	4.6 (0–45)	6.6 (0–61)

Note: Data are presented as mean ± SEM or median (range). There are no significant differences. ACU = acupuncture group; PP14 = placental protein 14; 0\* = a value below the detection limit of 1.5 μU/mL.

<sup>a</sup> Groups of patients included in the study by Westergaard et al. (2).

Westergaard. Beneficial effects of acupuncture in ART unrelated to endocrinological factors. *Fertil Steril* 2006.

a new prospective trial meeting the above requirements. The trial is conducted by four university-based Danish fertility clinics and will include a total of 640 IVF patients, randomized to either acupuncture on ET day, as in the present study, or to placebo acupuncture with the device described by Park et al. (6).

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