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## **Placebo acupuncture is associated with a higher pregnancy rate after IVF than real acupuncture**

A study comparing the effects of real and placebo acupuncture on pregnancy rates during assisted reproduction has found that, surprisingly, placebo acupuncture was associated with a significantly higher overall pregnancy rate than real acupuncture.

The study, published online in Europe's leading reproductive medicine journal *Human Reproduction* today (Thursday 13 November), looked at real and placebo acupuncture given on the day of embryo transfer in 370 patients in a randomised, double blind trial (where neither the patients nor the doctors knew which treatment was being given). [1]

The researchers found that the overall pregnancy rate (defined by a positive urinary pregnancy test) for placebo acupuncture was 55.1%, versus 43.8% for the real acupuncture.

Dr Ernest Hung Yu Ng, Associate Professor in the Department of Obstetrics and Gynaecology at the University of Hong Kong (People's Republic of China), said: "We found a significantly higher overall pregnancy rate following placebo acupuncture when compared with that of real acupuncture. In addition, there was a trend towards higher rates of clinical pregnancy, ongoing pregnancy, live birth and embryo implantation in the placebo acupuncture group, although the differences did not reach statistical significance."

The authors say that their results suggest that placebo acupuncture may not act as an inert control for real acupuncture, and that it may be having a real effect. This theory is supported by the fact that measurements for the receptivity of the uterus and the levels of patient stress changed significantly for both the real and control groups after the women had received the real or placebo acupuncture.

It is difficult to design a suitable control for acupuncture – a treatment that involves the insertion of fine needles into particular points on the body. In this study, the researchers used a placebo needle that looked identical to a real acupuncture needle, but which was blunt and retracted into the handle of the needle when pressed on the skin, while still giving the appearance and sensation of entering the skin. A trained acupuncturist applied the placebo to the same acupuncture points as for the real acupuncture.

Dr Ng gave two possible explanations for the results: "Placebo acupuncture is similar to acupressure and therefore is good enough to improve the pregnancy rate. Or else, it's possible that real acupuncture may, in some way, reduce the pregnancy rate of acupuncture.

"So far there is no evidence that real acupuncture would adversely affect IVF outcomes because, in a previous meta-analysis of several acupuncture studies, the pregnancy rate was higher in the acupuncture groups than in the control groups. However, we cannot draw a firm conclusion about this from our current study as we did not compare the two groups with a third control group patients who received neither forms of acupuncture. Further studies should be conducted to compare placebo or non-invasive acupuncture and controls without acupuncture."

Dr Ng was the lead author of the previous meta-analysis mentioned here, and an associated sub-group analysis detected a significant improvement in pregnancy rates for

acupuncture treatment when it was delivered on the day of embryo transfer, but not if it was given only on the day when the oocytes were retrieved from the women's ovaries.

However, Dr Ng's current study takes the research a step forward because it is double blinded. "The meta-analysis showed that acupuncture on the day of embryo transfer leads to a significantly higher pregnancy rate when compared to controls. But in the vast majority of the studies included in the meta-analysis, the controls received no acupuncture and the patients were not blinded. My current study compared real and placebo acupuncture in a double blind setting, which should be the ideal model in research. However, the results suggest that placebo acupuncture may not be inert."

Infertile patients can suffer from high levels of stress and anxiety, which can adversely affect the outcome of IVF. Dr Ng said: "We found a significant decrease in serum cortisol concentration and the anxiety level following placebo and real acupuncture. Reduction in stress in both groups may also contribute to a better pregnancy rate following placebo and real acupuncture."

Assessing the sometimes contradictory evidence about the effects of acupuncture on IVF success so far, Dr Ng concluded: "Based on my previous meta-analysis, I believe that acupuncture on the day of embryo transfer can improve the pregnancy rate. However, there are still some unresolved issues. The improvement in the pregnancy rates of IVF treatment with acupuncture are higher than that for drugs or other procedures given to enhance the success of this treatment, and the underlying biological mechanism is difficult to explain.

"In addition, the sub-group analysis shows no improvement in the pregnancy rate after acupuncture if the pregnancy rate of the IVF unit was good i.e. achieving a clinical pregnancy rate of more than 28% per cycle. In 2005 the pregnancy rate per embryo transfer in our unit was 35%, so this aspect requires further investigation."

(ends)

**[1] A randomized double blind comparison of real and placebo acupuncture in IVF treatment. *Human Reproduction*. Published online under advance access. doi:10.1093/humrep/den380**

**Notes:**

A pdf of the full research paper is available at <http://www.oxfordjournals.org/eshre/press-release/freepdf/den380.pdf>

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**Contact (media enquiries only):**

**Emma Mason**

**Tel: +44 (0)1376 563090 Mobile: +44 (0)7711 296 986**

**Email: [wordmason@mac.com](mailto:wordmason@mac.com)**