

# Current Research and Clinical Applications

## A Clinical Snapshot of Acupuncture and IVF

Recently the American journal *Fertility and Sterility* (May 2006) published three original research studies<sup>1,2,3</sup> on acupuncture as an adjunctive therapy for In Vitro Fertilisation (IVF), Intracytoplasmic Sperm Injection (ICSI) and Embryo Transfer (ET). Assisted Reproductive Technology, in particular IVF, was first used successfully in the early 1980s and has gone on to be a frequently used technique for couples experiencing trouble conceiving. To date, studies using acupuncture to support IVF have mostly revolved around the ET period, with Paulus et al.<sup>4</sup> establishing the first protocol in 2002.

Smith and colleagues<sup>1</sup> undertook a clinical trial randomising 228 women into a two-armed study, either receiving true acupuncture or non-invasive sham acupuncture (Streitberger placebo needle<sup>6</sup>). Three acupuncture treatments were given to all groups. Results showed pregnancy rates in the acupuncture group were 31% vs 23% for control ( $P = 0.81$ ), which means the odds of getting pregnant were one and a half times higher in the acupuncture group. Also, the pregnancy rate at 18 weeks was higher in the acupuncture group (28% vs 18%;  $P = 0.08$ ); however, neither outcome reached statistical significance. This study included a review of significant past studies, which resulted in the current

undertaking being more vigorous. The study concluded that a smaller treatment effect could not be excluded. While this study was carried out in an IVF clinic, the protocol was different to Paulus et al.<sup>4</sup> as Smith et al.<sup>1</sup> added an extra treatment at day nine (before ET). Loss to follow-up of 37 participants in both groups was due to the cycle being cancelled or no ET taking place. Of note, the women's age group had no bearing on the results.

Dieterle and colleagues<sup>2</sup> undertook a randomised, prospective, controlled clinical study allocating 225 women into a two-armed study. One group received true acupuncture before and after ET and the other received placebo acupuncture. (Note: actual points are not known to influence fertility, as per Traditional Chinese Medicine.) Results indicate that the true acupuncture group had significantly better outcomes compared to the placebo acupuncture group for clinical pregnancy (33.6% vs 15.6% respectively;  $P < 0.01$ ) and on-going pregnancy (28.4% vs 13.8%;  $P < 0.01$ ). Thus pregnancy was twice as likely with acupuncture compared to placebo in this trial. There may have been a possible placebo effect due to the lack of sufficient statistical analysis in some age groups. There was no loss to follow-up in this study.

Westergard and colleagues<sup>3</sup> undertook a prospective randomised trial by allocating 273 women into a three-armed study. One was a control group receiving no acupuncture. The first acupuncture group received acupuncture on the day of ET as well as before and after the procedure. The second acupuncture group received the same with an added acupuncture treatment again two days later. Results showed that clinical and on-going pregnancy rates in the acupuncture groups were higher than the control (39% vs 26%;  $P = 0.038$ ) and (36% vs 22%;  $P = 0.049$ ) respectively. This effectively means that the odds of getting pregnant were increased by one third. The second acupuncture arm did not reach statistical significance; however it was higher than the control (36% vs 26%;  $P = 0.049$ ). On the other hand, this group did have a higher early pregnancy loss (33%) than the control (21%) compared to the first acupuncture group (15%). The study may have been unwittingly unblinded due to the use of the IVF clinical nurses undertaking the acupuncture, as opposed to utilising an independent clinician. Loss to follow-up was 27 participants in all groups due to the cycle being cancelled or ET not taking place.

In conclusion, there is a need for larger studies providing acupuncture sub-analysis detail to observe relevant clinical

and research benefits. Interestingly, when comparing the results of all three studies, it seems that prescription acupuncture is slightly better than TCM individualised acupuncture. Finally, the observation of clinical success appears challenging to reproduce in clinical trials, which may be due in part to operator dependency, environmental factors and possibly placebo effect. However, these results are very promising.

## References

1. Smith CA, Coyle M, Norman RJ. Influence of acupuncture stimulation on pregnancy rates for women undergoing embryo transfer. *Fertil Steril* 2006;85(5):1352–8.
2. Dieterle S, Ying G, Hatzmann W, Neuer A. Effect of acupuncture on the outcome of in vitro fertilization and intracytoplasmic sperm injection: a randomized prospective, controlled clinical study. *Fertil Steril* 2006;85(5):1347–51.
3. Westergaard LG, Mao Q, Krogslund M, Sandrini S, Lenz S, Grinstead J. Acupuncture on the day of embryo transfer significantly improves the reproductive outcome in infertile women: a prospective, randomized trial. *Fertil Steril* 2006;85(5):1341–6.
4. Paulus WE, Zhang MM, Strehler E, El-Danasouri I, Sterzik K. Influence of acupuncture on the pregnancy rate in patients who undergo assisted reproduction therapy. *Fertil Steril* 2002;77(4):721–4.
5. Maciocia G. *Obstetrics and gynaecology in Chinese medicine*. Edinburgh, UK: Churchill Livingstone; 1998.
6. Streitberger K, Kleinhenz J. Introducing a placebo needle into acupuncture research. *Lancet* 1998;352:364–5.

*John C Deare and  
Sean W Scott*

## Neck Pain and Acupuncture

In the following, one very recent clinical trial<sup>1</sup> and one systematic review<sup>2</sup> on acupuncture and neck pain are summarised. Overall, acupuncture is effective for reducing chronic neck pain and improving patients' quality of life when it is used with or without conventional therapies. The effect is often long-lasting, from three months to one year. The results should not surprise our clinicians, but they do reassure our practice and enable us to show the evidence to both patients and other health practitioners.

### **Witt et al. Acupuncture for patients with chronic neck pain.<sup>1</sup>**

This is a multi-site, randomised, controlled trial involving 14 161 chronic neck pain patients in Germany, and is the largest acupuncture clinical trial reported so far. One quarter of the patients were randomly allocated to manual acupuncture (MA) and routine care control (RCC) groups. The other 75% of patients were treated with MA without randomisation. MA was

individualised and delivered by physicians who had more than 140 hours of training in acupuncture. Patients in the MA group also received RCC. Types of RCC were not specified. We can only assume that RCC included medications, physical therapy, massage and exercise.

On average, patients were treated for ten sessions of acupuncture (maximum of 15) over three months. MA groups including both randomised and non-randomised patients had pain and disability reduced significantly (28.9% and 321.7%) more than the RCC group (5.8%). More importantly, the effect was maintained for more than three months after acupuncture.

Patients with 20% reduction in pain and disability were considered responders and the rates for MA and RCC groups were 56.6% and 21.6%, respectively. Patients who were female or treated early responded better than others. In addition, quality of life was also improved in the MA in comparison to the RCC group.

The results indicate that MA in addition to routine care (RC) is about 25% better than RC alone. However, neither patients nor physicians were blind from the intervention allocation, and there was no placebo or sham acupuncture group. MA treatment protocol decided by physicians is both a weakness and a strength. The readers do not know the acupoints used. However, this arrangement does allow individualised treatment, which mimics clinical scenario.

The reduction of pain is, however, less than that reported by a recent single blind and placebo-controlled trial,<sup>3</sup> in which pain relief was about 60% and lasted for one year. Individualised acupoint selection includes distal and local acupoints and Ashi points based on the distribution and location of pain and tenderness. Of course, with a smaller sample size of 135 patients, the study by White et al.<sup>3</sup> might have over-estimated the effect size.

To view treatment protocol applied in this study, visit [www.iasp-pain.org/journal.html](http://www.iasp-pain.org/journal.html).

**Trinh et al. Acupuncture for neck disorders (review).<sup>2</sup>**

This is a Cochrane systematic review that was conducted by the researchers from the Cervical Overview Group. Ten clinical trials were reviewed and both the scientific quality and effect of acupuncture were assessed. Data presented show that acupuncture with either mixed local and distal acupoints or distal points alone can relieve chronic neck pain due to cervical spine degenerative changes, myofascial conditions or whiplash and neck pain with radicular symptoms. The relief often lasts up to three months after treatment. Real acupuncture reduced pain 30% more than sham acupuncture.

Commonly used acupoints in the ten trials were GB20 *Fengchi*, GB21 *Jianjing*, GV14 *Dazhui*, LI4 *Hegu* and SI3 *Houxi*. Often local small intestine points and tender points were used. The common treatment sessions were six. In general, individualised acupoint selection based on either Traditional Chinese Medicine theory or meridian theory or distribution of pain produced better outcomes than standard point selection. However, it was not the intention of this review to compare different forms of acupuncture.

Overall, there is moderate evidence that acupuncture is effective for chronic neck pain. Studies published in the last five years have better scientific quality.

In addition to acupuncture, many therapies have been reviewed for their

effectiveness. There is strong evidence that massage combined with manipulation or mobilisation produces both short- and long-term pain reduction, whereas alone, neither of them is particularly effective.<sup>4,5</sup> Intramuscular injection of lidocaine is more effective than saline injection or dry needling in terms of short-term relief.<sup>6</sup> There is limited or conflicting evidence that non-steroidal anti-inflammation drugs (NSAIDs), psychotropic medications, Botox A intramuscular injection, patient education, transcutaneous electrical nerve stimulation (TENS), radiofrequency and multidisciplinary rehabilitation are effective for chronic neck pain when compared with sham or other types of control procedure.<sup>6-10</sup>

#### EDUCATION SECTION

The Commonwealth Government funds the national subscription to the Cochrane Library so that Australians can access evidence free of charge and be informed of the effectiveness and safety of therapies. The web address is <http://www.nicsl.com.au/cochrane/index.asp>.

For information about systematic reviews and Cochrane collaboration, please visit the following website, <http://www3.interscience.wiley.com/cgi-bin/mrwhome/106568753/HOME>.

#### References

1. Witt CM, Jena S, Brinkhaus B, Liecker B, Wegscheider K, Willich SN. Acupuncture for patients with chronic neck pain. *Pain* 2006;125:98-106.

2. Trinh KV, Graham N, Gross AR, Goldsmith CH, Wang E, Cameron ID et al. Acupuncture for neck disorders (review). *Cochrane Database Syst Rev* 2006(3).

3. White P, Lewith G, Prescott P, Conway J. Acupuncture versus placebo for the treatment of chronic mechanical neck pain: a randomized, controlled trial. *Ann Intern Med* 2004;141:911-19.

4. Kay TM, Gross A, Goldsmith C, Santaguida PL, Hoving J, Bronfort G et al. Exercises for mechanical neck disorders. *Cochrane Database Syst Rev* 2005(3).

5. Gross AR, Hoving JL, Haines TA, Goldsmith CH, Kay T, Aker P et al. Manipulation and mobilisation for mechanical neck disorders. *Cochrane Database Syst Rev* 2004(1).

6. Peloso P, Gross A, Haines T, Trinh K, Goldsmith CH, Aker P et al. Medicinal and injection therapies for mechanical neck disorders. *Cochrane Database Syst Rev* 2004(3).

7. Haraldsson BG, Gross AR, Myers CD, Ezzo JM, Morien A, Goldsmith C et al. Massage for mechanical neck disorders. *Cochrane Database Syst Rev* 2006(3).

8. Gross AR, Aker PD, Goldsmith CH, Peloso P. Patient education for mechanical neck disorders. *Cochrane Database Syst Rev* 1998(2).

9. Karjalainen K, Malmivaara A, van Tulder M, Roine R, Jauhiainen M, Hurri H et al. Multidisciplinary biopsychosocial rehabilitation for neck and shoulder pain among working age adults. *Cochrane Database Syst Rev* 2003(2).

10. Niemisto L, Kalso E, Malmivaara A, Seitsalo S, Hurri H. Radiofrequency denervation for neck and back pain. *Cochrane Database Syst Rev* 2003(1).

Zhen Zheng