9. Cardiovascular Diseases

Reference

Arai YCP, Kato N, Matsura M, et al. Transcutaneous electrical nerve stimulation at the PC-5 and PC-6 acupoints reduced the severity of hypotension after spinal anaesthesia in patients undergoing Caesarean section. *British Journal of Anaesthesia* 2008; 100 (1): 78–81. Pubmed ID: 17959591

1. Objectives

To determine the efficacy of transcutaneous electrical nerve stimulation (TENS) at the PC6 (内関) and PC5 (間使) acupoints for hypotension after spinal anaesthesia in Caesarean section patients.

2. Design

Randomized controlled trial using sealed envelopes for allocation (RCT-envelope).

3. Setting

Not described.

4. Participants

There were 36 singleton parturients (38–39 weeks). Patients with preeclampsia, hypertension, diabetes, or obesity were excluded.

5. Intervention

Arm 1: Acupoint. TENS at the PC6 (内関) and PC5 (間使) acupoints of both arms (n=12).
Arm 2: Non-acupoint. TENS at non-acupoints of both shoulders (n=12).
Arm 3: Control. No treatment (n=12).
TENS was commenced immediately after patients entered the operating theatre. TENS was continued until delivery at 50 Hz with current intensity increased to the maximum tolerable level without causing muscle contraction or discomfort.

6. Main outcome measures

Systolic BP, diastolic BP, heart rate, ephedrine dosage, and frequency.

7. Main results

Minimal pressure, both systolic and diastolic, was significantly higher in Arm 1 (P=0.013, <0.001, 0.001, respectively). Systolic pressure only was significantly higher in Arm 2 than Arm 3 (P<0.001). There was no difference in heart rate among arms. Ephedrine dosage and frequency were significantly lower in Arm 1 (P=0.025)..

8. Conclusions

TENS at the PC6 (内関) and PC5 (間使) acupoints reduces the severity of hypotension due to spinal anaesthesia in patients undergoing Caesarean section.

9. From acupuncture and moxibustion medicine perspective

The fact that TENS at PC6 (内関) increases heart output and reduces hemorrhagic hypotension suggests the possibility that TENS at PC6 (内関) and PC5 (間使) augments sympathetic tone, increased cardiac function and vascular tone, and reduces hypotension.

10. Safety assessment in the article

Not mentioned.

11. Abstractor's comments

Vasopressor therapy has been heavily relied on for hypotension after spinal anaesthesia in patients undergoing Caesarean section. This is, therefore, a groundbreaking study in which an RCT was used to examine the effects of TENS. Although masking is not included in the design of this study, the measures are objective measures and enable impartial examination of the outcomes. The relationships between each individual measure and the objective are simple, so they are readily comprehensible. While this study does conclude that TENS at PC6 (内関) and PC5 (間使) acupoints is effective for hypotension, Caesarean section is major surgery that risks the life of both the mother and the fetus, so further vigorous work is anticipated to find the most appropriate frequency and to further increase the number of cases studied, with backup vasopressor drugs.

12. Abstractor and date

Shimoichi Y, 11 September 2011.