Unilateral electrical stimulation of the heart 7 acupuncture point to prevent emergence agitation in children: A prospective double blind randomized controlled trial

Nakamura N.¹⁾, Mihara T.²⁾, Miwa T.²⁾, Ka K.²⁾

1) National Yokohama Medical Center , Department of Anaesthesiology

2) Kanagawa Children’s Medical Center, Department of Anaesthesiology

Background

Prevention of Emergence agitation (EA) by stimulating acupoint

Stimulating the HT7 acupuncture point **bilaterally** using a neuromuscular transmission monitor

➡ EA was effectively prevented
risk ratio was 0.56 (95% confidence interval: 0.36–0.86)¹⁾

Research Question ‘Is bilateral stimulation necessary?’

Goal of Study

To examine the efficacy of **unilateral** electrical stimulation of HT7 to prevent EA in paediatric patients using a neuromuscular transmission monitor.

Method

- Prospective, randomized, double-blind controlled study.
- 100 children (age range, 18–96 months) undergoing inguinal hernia repair or orchiopexy under sevoflurane anaesthesia were included.
- The enrolled subjects were randomly assigned to one of the following two groups.

- (1) **HT 7 group**: unilateral (right side) stimulation of the HT7 acupuncture point located on the ulnar side of the wrist using a single-twitch electrical stimulus (1 Hz, 50 mA) throughout the surgery.
- (2) **Control group**: electrodes attached to the right side HT7 point; no electrical stimulus applied.
- **Primary outcome**: incidence of EA.
 - Paediatric anaesthesia emergence delirium (PAED) score ≥ 10 demonstrated the presence of EA.

Results

- All 100 enrolled subjects completed the study.

	HT7 (n = 50)	Control (n = 50)	p value
Age (months)	45 (27–60)	52 (31–74)	0.132
Sex (male:female)	37:13	37:13	> 0.99
Weight (kg)	14.3 (12.6–19.5)	16.2 (12.7–19.5)	0.268
Operation time (min)	24 (15–67)	23 (14–45)	0.198
Anaesthesia time (min)	55 (40–119)	51 (40–87)	0.319
Consumption of fentanyl (µg)	20 (15–24)	15 (15–24)	0.238

- There was no statistical difference between the incidence of EA in the HT7 and the control groups.
- The wide range of the confidence interval precludes of any definitive conclusions.

	HT7 (n=50) % (n)	Control (n=50) % (n)	RR [95% CI]	P value
EA present	28.0 (14/50)	24.0 (12/50)	1.17 [0.60-2.27]	> 0.99

Conclusion

We did not identify a difference in the incidence of EA between the unilateral HT7 stimulation and control groups, contrary to the findings using bilateral HT7 stimulation.

1) Hijikata Toshiyuki, Mihara Takahiro, Nakamura Nobuhito, *et al.* Electrical stimulation of the heart 7 acupuncture site for preventing emergence agitation in children: A randomised controlled trial. *Eur J Anaesthesiol* 2015