

## ***ABSTRACT***

### **Background**

The incidence of PONV in gynecological laparoscopic surgery remains high. Stimulation of the auricular branch of the vagus nerve influences the individual's inflammatory and psychometric aspects, leading to changes in the gastrointestinal tract and the nausea and vomiting center in the brain which can reduce the incidence of nausea and vomiting. Data regarding the use of vagus nerve stimulation for the incidence of PONV in gynecological laparoscopic surgery is still limited.

### **Objective**

To determine the effect of transcutaneous vagal nerve stimulation (taVNS) on the incidence of PONV and the time to first flatus in patients who have had gynecologic laparoscopy at RSUP Dr. Kariadi, Semarang.

### **Method**

This double blind randomized controlled trial was conducted on 38 patients who had undergone gynecological laparoscopic surgery at RSUP Dr. Kariadi, Semarang. A control group consisting of 19 patients were given ondansetron injection of 8 mg/8 hours postoperatively, while the remaining 19 patients were treated with a TENS device in the RR room on the tragus of the left ear with a frequency of 30 Hz and a pulse width of 250  $\mu$ s. The observed clinical outcomes were PONV 24 hours after treatment, objective nausea and vomiting, and the timing of first post-treatment flatus. For statistical analysis, independent t test is used if the data are normally distributed and the Mann-Whitney test is used if the data are not normally distributed. Results are considered significant if  $p < 0.05$ .

### **Results**

The taVNS procedure decreased the incidence of nausea from 16 patients to 4 patients in the treatment group. Meanwhile, 12 patients in the control group still felt nauseous (OR 0.156; 95% CI 1.037 – 1.659;  $p = 0.021$ ). The procedure also decreased the incidence of vomiting from 13 patients to 3 patients in the treatment group. As many as 10 patients in the control group still experienced vomiting (OR 0.169; 95% CI 1.037 – 1.777,  $p = 0.040$ ). The average time for the first flatus to occur in the treatment and control groups was  $563.47 \pm 15.81$  minutes and  $975.84 \pm 80.04$  minutes respectively.

### **Conclusion**

Vagus nerve stimulation can significantly reduce the incidence of nausea and vomiting and accelerate the process of first flatus after gynecological laparoscopic surgery.

### **Keywords**

Transcutaneous vagal nerve stimulation, post-operative nausea and vomiting, gynecological laparoscopy