

Ⅲ 研究成果の刊行に関する一覧表

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--Letter to the Editor--

Acupuncture for Dysphagia in Poststroke Patients

: A Videofluoroscopic Study

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Severe dysphagia predisposes to medical complications such as aspiration pneumonia in poststroke patients.¹ Existing modalities for treating dysphagia are generally ineffective.² We recently reported that acupuncture on two acupoints (Zusanli ST36 and Taixi K3) restored the swallowing reflex³ and gait disorders⁴ in poststroke patients. In this study, we performed a videofluoroscopic study (VFSS) to determine if acupuncture also improves dysphagia and aspiration.

According to Magnetic Resonance Imaging findings, 32 poststroke patients (84 ± 9 (mean \pm SD) years, Female/Male 20/12) with episodes of choking while taking food or drinking liquid were selected randomly at an elderly care facility and participated in this study under written informed consent. Participants were randomly assigned into two groups. We practiced acupuncture on the intervention group (18 patients; 77 ± 9 (mean \pm SD) years, F/M 10/8) three times a week for four weeks with usual care. Four disposable stainless steel fine needles (diameter 0.16 mm, length 40 mm; SEIRIN, Shizuoka, Japan) were inserted in two acupoints (ST36 and K3) bilaterally and kept at a 10 mm depth for 15 minutes without any extra stimulation such as electrical or manual. Fourteen other patients were assigned to the control group (79 ± 5 (mean \pm SD) years, F/M 10/4) and

received usual care without acupuncture. VFSS was performed at the base line and four weeks later in both groups. The interval of VFSS was 5 minutes with a random order of three different kinds of food. The patients were asked to swallow 5 mL of water, 5 mL of fluid food (liquidized food) and one piece of solid food (approximately 5ml of a cookie). The water and food were blended with barium (Enemastar Enema Powder, FUSHIMI Pharmaceutical, Marugame, Japan). In each swallowing, VFSS was performed in a lateral projection with the patient in a sedentary position using a fluoroscopy unit (Prestige II, GEMedical Systems, Tokyo, Japan) connected to a DVD-HDD recorder (RD-XS30, TOSHIBA, Tokyo, Japan). Images were obtained at 30 frames per second and reviewed frame by frame with image processing software (Premier 6.0, Adobe Systems, Tokyo, Japan) by a radiologist who did not know if the patient had been treated with acupuncture. Pharyngeal retention was defined as pharyngeal residue of material in the valleculae and in the piriform sinuses after swallowing. Tracheobronchial post-deglutitive aspiration was defined as penetration of material below the level of the vocal folds. VFSS frames from the instruction of swallowing to the time that the material passed the entrance of the esophagus were observed. Body temperature was measured at 2:00 p.m. every day. The

total number of days of fever above 37.8 degrees was counted for four weeks.

The swallowing times at baseline from the instruction of swallowing to the time of passing the entrance of the esophagus were 1.7 ± 1.0 , 8.7 ± 13.2 and 10.4 ± 7.0 (mean \pm SD) sec with water, fluid food and solid food, respectively in the intervention group and 1.9 ± 0.6 , 4.5 ± 3.7 , 9.7 ± 7.6 sec in the control group. After four weeks the average times were 1.1 ± 0.3 ($P < .05$), 5.0 ± 4.8 ($P < .05$), 11.8 ± 9.3 sec, respectively, in the intervention group and 2.1 ± 0.9 , 5.4 ± 5.4 , 10.1 ± 6.9 sec, respectively, in the control group. In the intervention group the swallowing time of water and fluid food were shortened significantly after four weeks.

Figure 1 shows the percentage of pharyngeal retention and aspiration in the two groups. In the intervention group, there were significant decreases of retention, but in the control group there was no significant change. In the intervention group, aspiration at the baseline was observed in 40%, 8% and 25% of the patients with water, liquid and solid foods, respectively, but no aspiration was observed after four weeks. Aspiration did not change in the control group after four weeks. High fever over 37.8 degrees was observed in 28 of 394 days of the control group but only in four days of 356 days of the intervention

group. Fever-up days of the intervention group was significantly lower than that of the control group ($P < .01$). The combination of these acupoints was selected according to the traditional theory of Chinese medicine, and is novel and safe, easy to use. These data show the significant effect of the acupuncture treatment on pharyngeal retention and aspiration. The present study suggests that this acupuncture therapy is a new way to prevent aspiration and aspiration pneumonia in poststroke patients.

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FIGURE LEGEND

Figure 1: The rate of pharyngeal retention (A, B) and aspiration (C, D) in the control and intervention group at baseline (closed column) and after four weeks (open column).

* and ** show significant decreases after four weeks compared with baseline by the Wilcoxon signed rank test, $P < 0.05$ and $P < 0.01$, respectively.

