

Chronic electrical stimulation at acupressure points may relieve stomach woes for diabetics

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Diabetic patients who suffer from a common complication of diabetes called gastroparesis may find that chronic electrical stimulation (ES) at specific acupuncture points could relieve gastroparesis symptoms such as nausea, vomiting, early satiety, abdominal fullness, upper abdominal pain and bloating, according to study results unveiled today at the American College of Gastroenterology's (ACG) 77th Annual Scientific meeting in Las Vegas.

The study, "Chronic [Electrical Stimulation](#) at Acupuncture Points Improves Dyspeptic [Symptoms](#)," used a watch-sized digital microstimulator that was specially developed for this project to assess the effects of ongoing electrical stimulation at acupuncture points on gastroparesis symptoms in [diabetic patients](#) with refractory gastroparesis. Despite medical therapy, these patients have not found relief for their symptoms and experience frequent physician and [emergency room visits](#) or hospitalizations because often they are unable to eat or keep food down and maintain proper nutrition, according to lead investigator Jiande Chen, Ph.D., of the University of Texas Medical Branch. "These are very severe symptoms and could be life-threatening as the treatment options for these patients are very limited and there are no effective medications," said Dr. Chen who noted that the device looks and works like the microstimulators used to alleviate motion sickness that are already on the market.

Diabetes is a lifelong disease in which there are high levels of sugar in the blood. [High blood glucose](#) causes chemical changes in nerves and

damages the blood vessels that carry oxygen and nutrients to the nerves. Gastroparesis is a type of [nerve damage](#) affecting the vagus nerve which controls the movement of food through the digestive tract. Ten to fifteen percent of the 25.8 million Americans living with diabetes have gastroparesis. This condition can worsen diabetes by making it more difficult to manage [blood glucose levels](#) because a delay in gastric emptying can cause a spike in glucose levels when the food finally enters the small intestine, according to the American Diabetes Association.

The device used for this blind cross-over design study on 26 diabetic patients with gastroparesis (18 completed the study) was worn either on the wrist or the leg with four-week ES and four-week sham ES in a randomized order. Electrical stimulation was performed via surface ECG electrodes placed at acupoints PC6 and ST36 using pulse trains. Sham-ES was performed using same parameters via non-acupoints. The PC6 acupuncture point is located on the wrist about 2 1/2 fingers up from the wrist crease on the inside of the forearm, while ST36 is located on the front of the leg, one hand width (four fingers) below the kneecap, on the outside, in the depression between the shinbone and the leg muscle.

Patients were asked to self-apply ES/Sham ES for two hours after each lunch and dinner and the electrogastrogram (EGG) and ECG were recorded at the beginning and end of each 4-week treatment.

According to investigators, 4-week ES not sham-ES "significantly improved" 5 of 9 gastroparesis symptoms: nausea by 29.7 percent; vomiting by 39.3 percent; abdominal fullness by 21.4 percent, bloating by 20.6 percent and retching by 31.1 percent. ES also resulted in a trend of increased vagal activity after eating.

"With all five symptoms significantly improving between 20 and 40 percent, this home-based, non-invasive electrostimulation therapy is

feasible and effective in treating gastroparesis symptoms and possible mechanisms involving central, gastric and autonomic functions require further study, " said Dr. Chen. "Although this is a small study, the results are noteworthy because the side-effects and the cost are low." Dr. Chen added that the device is not yet on the market.

Provided by American College of Gastroenterology

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