Effect of acupuncture for gastrointestinal activity differs depending on the pathophysiological condition

Acupuncture is a traditional therapy that stimulates specific acupuncture points on the human body. The number of users of acupuncture worldwide has steadily increased over the last 40 years. Acupuncture is thought to function in a therapeutic manner through homeostatic mechanisms, according to traditional literature. Thus, opposing symptoms such as hypertension and hypotension can be treated through acupuncture administered at the same points. For example, acupuncture at Bahui (GV20) has been shown to be effective in treating both hypertension and hypotension. In addition, acupuncture elicits a more effective response when it is applied to a pathological condition rather than during normal physiological status. Acupuncture at LI4 and PC6 reduces heart rate variability in a fatigued state, but it has no effect in normal state volunteers.

Herein we present additional clinical data supporting the idea that the effect of acupuncture is dependent on the participant’s pathophysiological conditions. Two serial clinical studies of Siguan acupuncture (see below) were performed; first in 20 healthy male volunteers (median age: 24.5 years, range 22 to 30; median body weight: 71.5 kg, range 65 to 98) and second in 20 male volunteers (median age: 23.8 years, range 21 to 30; median body weight: 68.3 kg, range 53 to 92) with constipation induced by anti-diarrhoeals (loperamide 4 mg administration twice with a 12-h interval; Janssen, Titusville, New Jersey, USA). As a single-blind, randomised and sham acupuncture-controlled study, we quantitatively examined the gastrointestinal (GI) motility by following the passage of 20 radiomakers for 48 h through taking a serial abdominal x-ray radiography (6, 12.5, 24.5 and 48 h) along with acupuncture (0, 12, 24 and 36 h).

Siguan (a combination of LI4 and LR3 bilateral meridian points) is one of the most important acupoints to treat multiple GI symptoms including constipation and diarrhoea. Siguan and sham points (2-3 cm distant laterally from LI4 and LR3 on both hands and feet) were needled by a licenced Oriental medical doctor using stainless steel acupuncture needles (Lot # QDB060410 gauge 32, diameter 0.25 mm; Donbang Healthcare Products, Seoul, South Korea). The needles were inserted perpendicularly at Siguan and sham acupoints in the order of right hand, left hand, right foot and left foot. The depth of needle insertion was 1 cm at LI4 and LR3, and 0.3–0.5 cm at sham acupoints. Siguan acupoints were manipulated by rotating the needles 90° clockwise five times for provoking de qi sensation. The needles were retained for 20 min. Each study protocol was approved by the independent ethics committee of Dunsan Oriental Hospital of Daejeon University (approval # H2005-04 and 2006-014). All patients provided informed consent.

In normal volunteers, neither real or sham acupuncture group exhibited any significant effect on the GI motility in an exponential weighting score (EWS) (figure 1A). In contrast, when GI activity was inhibited by administration of loperamide, the real acupuncture group showed a significant improvement compared with the sham acupuncture group, with a 2.3 times increase in EWS (p = 0.029, figure 1B). The therapeutic effect of real acupuncture on GI motility was evidenced by the right-shift pattern in the radiomaker distribution profile, as was quantitatively presented in EWS. Acupuncture is thought to adjust the imbalanced state of the human body and work more effectively in the abnormal than the normal condition.
to be associated with the autonomic nervous system (ANS). ANS control is associated with the transit time of radio-opaque marker for the whole gut as well.7

Our finding provides some scientific evidence for the therapeutic action of acupuncture. Additionally, it describes the clinical relevance of Siguan acupuncture for the management of GI disorders. However, further rigorous studies are required to elucidate the therapeutic action of acupuncture.

Dal-Seok Oh,1,2 Weechang Kang,3 Sun-Mi Choi,2 Chang-Gue Son*  

1Cancer Research Centre, Korea Institute of Oriental Medicine, Daejeon, South Korea  
2Department of Medical Research, Korea Institute of Oriental Medicine, Daejeon, South Korea  
3Department of Information and Statistics, Daejeon University, Daejeon, South Korea  
4Department of Oriental Internal Medicine, Daejeon Oriental Hospital of Daejeon University, Daejeon, South Korea

Correspondence to Professor Chang-Gue Son, Department of Oriental Internal Medicine, Daejeon Oriental Hospital of Daejeon University, 22-5 Daehung-dong, Jung-gu, Daejeon 301–724, South Korea; cksion@dju.kr

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REFERENCES


Figure 1  (A) EWS profile under normal GI motility (mean ± SD). (B) EWS profile under inhibited GI motility by loperamide (mean ± SD). EWS can be calculated as follows: Number at SI×e0 + Number at AC×e1 + Number at TC×e2 + Number at DC×e3 + Number at SR×e4 + Number at OB×e5.
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