

Acupuncture Intestinal Microflora Finding, Relieves Ulcer

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Acupuncture is effective for the treatment of stress-induced gastric ulcers. In a controlled laboratory study, Beijing University of Traditional Chinese Medicine researchers determined that acupuncture outperforms the drug omeprazole for the alleviation of stress-induced gastric ulcers (SGU), while simultaneously balancing intestinal microflora. The research team (Xue et al.) identified important biochemical mechanisms elicited by acupuncture responsible for producing the therapeutic benefits. [1]

A total of 28 SD rats were randomly divided into a blank control group, an SGU model group, an acupuncture treatment group, and a medication treatment group (7 rats in each group). Next, the rats in the model group, the acupuncture treatment group, and the medication treatment group were immobilized vertically in water with the water level reaching the processus xiphoideus of the rats' sternum for 3 hours to establish the SGU model. The acupuncture treatment group received body acupuncture at Zhongwan (CV12) and bilateral Zusanli (ST36). In the drug treatment group, omeprazole (dosage: 0.2 mg/kg) was administered by oral gavage for 5 days. Omeprazole is a proton pump inhibitor (PPI) used to treat gastric ulcers by reducing excessive stomach acid levels. The control and model groups received no acupuncture or drug treatment during immobilization.

Intestinal Microflora Changes

Intestinal microflora disorders are related to gastrointestinal diseases. Previous research confirms that the levels of the phylum Bacteroidetes, Firmicutes, Proteobacteria, and Actinomycetes are altered in SGU patients. [2] The results of this study also find that, "Compared with the blank control group, the abundance of Proteobacteria, Actinomycetes, and Deferribacteres in the SGU model group increased, while that of Bacteroidetes and Firmicutes decreased, suggesting that SGU has changed intestinal microflora in laboratory rats." After treatment; however, the abundance of the phylum Bacteroidetes increased in the acupuncture group and the medication group, while the abundance of the phylum Firmicutes, Proteobacteria, Actinomycetes, Deferribacteres decreased compared with the model group.

Biochemical Mechanisms

The research team identified biochemical responses elicited by the application of acupuncture for treating SGU. Previous studies have shown that the downregulation of serum interleukin-4 (IL-4) and the upregulation of IL-6 contribute to SGU. [3] IL-4 is an anti-inflammatory cytokine derived from T cells. The decrease of IL-4 level indicates the weakening of the inflammatory response, thereby promoting the development of SGU. IL-6 is a pro-inflammatory cytokine secreted by activated macrophages, lymphocytes, and epithelial cells. Its over-expression induces the release of endogenous inflammatory factors, leading to internal environment disorders and aggravating the body's inflammatory responses.

The researchers conclude, "Compared with the blank control group, the SGU model group had a significant reduction in the content of serum IL-4 ($p < 0.01$), and a significant increase in the content of serum IL-6 ($p < 0.01$)." They explain, "Inflammatory cytokines are responsible for regulating cellular immunity and maintaining internal homeostasis." They add, "the imbalance between pro-inflammatory cytokine IL-6 and the anti-inflammatory cytokine IL-4 plays a key role in the occurrence and development of SGU."

Compared with the model group, the acupuncture group and the medication group show a significant increase of serum IL-4 ($p < 0.01$, $p < 0.05$) and a significant reduction of serum IL-6 ($p < 0.01$, $p < 0.05$). Compared with the medication group, the content of IL-4 was significantly increased ($p < 0.05$), while that of serum IL-6 was significantly decreased ($p < 0.05$) in the acupuncture group. The researchers explain that "Both acupuncture and medication balanced IL-4 and IL-6 levels." They note, "Increased IL-4 levels suggest activated anti-inflammatory function, while decreased IL-6 levels means strengthened inhibition of pro-inflammatory function." In addition, "The acupuncture group significantly outperformed the medication group in regulating these parameters ($p < 0.05$)."

Microscopic Detection

For the blank control group, there were no pathological changes and the mucosal glands were arranged orderly without infiltrated red blood cells. For the model group, the gastric

mucosa was seriously damaged, the gland arrangement was disordered, the hyperemia was serious, and there was infiltrated red blood cells. For the acupuncture group, the gastric mucosa was mostly intact, with a small amount of infiltrated red blood cells and necrotic cells. For the medication group, the gastric mucosa was relatively intact, with a small amount of infiltrated red blood cells exuding and necrotic cells. The microscopic images confirm that acupuncture prevents tissue damage.

Acupuncture

Acupuncture treatment commenced one day after the SGU model was established. Acupuncture was applied once per day, for a total of 5 days. Needle retention time per acupuncture session was 20 minutes, during which time the needles were twisted, lifted, and thrust every 5 minutes. The acupoints used in the study were the following:

- CV12 (Zhongwan)
- ST36 (Zusanli)

The researchers selected acupoints ST36 and ST21 for their investigation based both on ancient Traditional Chinese Medicine (TCM) principles and modern research. Zhongwan is a front Mu-collecting point responsible for regulating qi activity. Zusanli is the He-sea point of the stomach meridian. The combination of these two points are often used to treat gastrointestinal problems. Modern research also confirms that needling Zhongwan and Zusanli can reduce damage caused by SGU. After treatment, the gastric mucosal damage index was calculated using the Guth's scoring scale:

- *1 point: spot erosion*
- *2 points: erosion lesion length < 1 mm*
- *3 points: erosion lesion length from 1 to 2 mm*
- *4 points: erosion lesion length from 2 to 3 mm*
- *5 points: erosion lesion length > 3mm*
- **If the erosion lesion width > 1mm, the points are doubled.*

Results

The results of the research indicate that acupuncture is an effective treatment modality for the treatment of SGU. Researchers demonstrate that acupuncture alleviates relevant symptoms, balances intestinal microflora, and simultaneously elicits biochemical responses that maintain internal control of inflammation and promote homeostasis.

References:

[1] Xue T, Wang LJ, Wu YQ, et al. Effect of acupuncture on serum inflammatory cytokines and intestinal flora in rats with stress-induced gastric ulcer [J]. *Acupuncture Research*, 2020, 05: 379-383.

[2] Li L, Ye F, Zhang GX. Research progress on the relationship between gastrointestinal microecology and peptic ulcer [J]. *Journal of Gastroenterology and Hepatology*, 2015, 24 (3): 241-244.

[3] Gong ZH, Hu JR, Duan YQ, et al. Effects of Baiji polysaccharides on the levels of serum IL-2R, IL-4 and gastric tissue Caspa-8 in gastric ulcer model rats [J]. *China Journal of Traditional Chinese Medicine and Information*, 2019, 26 (10): 35-39.