Anti-Inflammatory and Wound Healing Effect of Acupuncture in Treating Phonotraumatic Vocal Fold Pathologies

Background: Acupuncture has been shown to be effective in bringing about improvements in benign vocal lesions and vocal function (Yiu et al., 2006). The underlying biological mechanism of acupuncture in the treatment of benign vocal pathologies is not fully understood yet. The improvement is, however, not a result of stress reduction that is often attributed to acupuncture (Kwong & Yiu, 2010).

Objective: This study set out to investigate whether acupuncture would influence the anti-inflammatory process in vocal fold lesion healing.

Methodology: Secretions from the vocal fold surfaces of 17 subjects with phonotraumatic lesions were collected before and after a 30-minute session of genuine (N=9) or sham (N= 8) acupuncture procedures, and again 24 hours after baseline. Genuine acupuncture involved needling at voice-related acupoints Renyin (St9), Lianquan (Ren23), Lieque (Lu7), Hegu (Li4) and Zhaohai (Ki6), while the sham acupuncture used a procedure in which subjects were made to believe that they received needles at these acupoints but in reality the needles did not penetrate the skin. Protein levels of pro-inflammatory cytokine interleukin (IL)-1β and anti-inflammatory cytokine IL-10 were measured in these secretion samples using enzyme-linked immunosorbent assay (ELISA).

Results: Pro-inflammatory IL-1β concentrations increased significantly over time in the sham acupuncture group (Friedman's 2-way ANOVA=7.6, df=2, p=0.02) while anti-inflammatory cytokine IL-10 concentrations increased significantly after treatment in the genuine acupuncture group (Friedman's 2-way ANOVA=6, df=2, p=0.05). The anti-inflammatory effect following one session of acupuncture was, however, only short-lived; IL10 concentrations returned to at the 24-hour follow-up time point.

Conclusion: Results suggested that genuine acupuncture, when compared with sham acupuncture, enhanced anti-inflammatory responses in subjects with phonotraumatic vocal fold lesions.

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