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The effect on autonomic nerve activity by stimulating pericardium meridian using laser acupuncture with lift-thrusting function

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The autonomic nerve is composed of sympathetic and parasympathetic nerves, which usually function oppositely in the physiological body, and are mutually adjusted according to our physical conditions. In traditional Chinese medicine, the acupoint "Neiguan (PC6)" is usually considered as effective for the activation of sympathetic and parasympathetic nerves. The main purpose of this study is to explore the effect on autonomic nerve activity by simulating Neiguan using laser acupuncture with lifting and thrusting functions. We used "ANSWatch" (Taiwan Scientific Co. Ltd.) to measure the heart rate variability (HRV) of the subject before and after acupuncture stimulation, and converting to indices of sympathetic and parasympathetic activity. We adopted the home-made "emulated laser acupuncture system" which can implement the lifting and thrusting functions in traditional acupuncture. The mentioned laser acupuncture adopted NI myRIO as the main controller, which was driven with LabVIEW software; in which the depth (focus position), force (light intensity) and procedure were program-adjustable. By using the emulated laser acupuncture one can implement the acupuncture method in Chinese medicine by adjusting focus of incident light to achieve a required depth when considering the individual variation, such as the patient's body shape and the various depths of different acupoints and meridians, etc., to enhance the acupuncture efficiency. In this study, we enrolled 23 subjects from Department of Chinese Medicine, E- Da Hospital. The autonomic nerve activity was analyzed by paired t- test. The result shows that the sympathetic nerve activity was significantly increased after acupuncture with lifting and thrusting. Although parasympathetic nerve activity did not change significantly, autonomic nervous activity shows significant differences toward balance. We conclude that stimulating Neiguan point with emulated laser acupuncture casts significant impact on the autonomic nervous system, indicating that the laser acupuncture would be useful for the adjustment of human psychosomatic state.

Biography

Chih-Yu Wang has completed his PhD from National Yang-Ming University and Post-doctoral studies from National Taiwan University. He is a Professor of Department of Biomedical Engineering, I-Shou University, Taiwan. He completed his Major in Bio-photonics, especially on laser diagnostics and treatment, such as fluorescence spectroscopy, polarized imaging, luminescence nanoparticles synthesis, and photodynamic therapy. His recent researches were mainly focused on the design and manufacture of modern instrument to implement the diagnostic and treatment methods in traditional Chinese medicine. He has published more than 40 papers in related field on reputed journals.

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