

3rd International Conference on

Depression, Anxiety and Stress Management

June 21-22, 2017 London, UK

**Torao Ishida***Suzuka University of Medical Science, Japan***Effect and its mechanism of acupuncture stimulation at Bai-Hui (GV 20) and Yintang (Ex-HN3) on depressed mice, rats and humans**

We developed mild depression in mice and rats by water-immersion stress. We treated these mildly depressed mice and rats with acupuncture on the GV20 and Ex-HN3 points with imipramine. We measured the immobile time and serum corticosterone level in the mice and rats and mRNA expressions of NT-3, NT-4/5, and TNF-alpha in the mice. The simultaneous acupuncture treatment on GV20 and Ex-HN4 of the mice and rats significantly reduced immobility time in forced swimming test as well as imipramine treatment. This treatment enhanced mRNA expressions of NT-3 and NT-4/5 but decreased TNF-alpha mRNA expression of the mice. Single acupuncture treatment on either GV 20 or Ex-HN 4 did not reduce immobile time. We treated 10 healthy persons with electro acupuncture (EA) on the above two points. Changes in integral value of blood oxygenation level of cerebral cortex during verbal fluency task before and after EA were measured with NIRS, which is auxiliary method of evaluation of depression. There was not statistically significant difference between two means of integral values before and after EA treatment with conventional statistical analysis. We analyzed the above effects of EA with using Ishida's response formula ($Y=AX+B$, where [Y] is increase value after treatment, [A] is the slope value, [X] is the value before treatment, [B] is Y-intercept value). We found that [Y] increased reverse-dependently on [X] when [X] was smaller than $[-B/A]$ and decreased dependently on [X] when [X] was larger than $[-B/A]$. These increase and decrease of the value were almost canceled each other during calculation of mean but not canceled during calculation of its standard error. Conventional statistical analysis was not consistent with the actual effect of acupuncture having homeostatic effects. We developed new statistical analysis suitable for homeostatic effects.

Biography

Torao Ishida has completed his PhD from Tokyo University and Post-doctoral studies from Princeton University. He is Honorary Professor and Executive Director of Suzuka University of Medical Science and Honorary Researcher of Tianjin University of Traditional Chinese Medicine. He has published more than 160 papers in reputed journals and has been serving as an Editorial Board Member of the Japanese Society of Medicinal Dietetics. He has won ten awards in Japan, China, Korea and USA including the Minister of ECSST Commendation Prize of Science and Technology and Tokyo metropolitan Merit Award of Science and Technology.

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