

The Mechanism of the Sedate Effect by Acupuncture at the GV20 Point and Yintang Point in Dogs: Medication by Alpha 2 Adrenoceptors

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Introduction: Recently, it has been reported that non-pharmacological methods such as acupuncture have been used to manage stress and anxiety instead of using sedatives. Mental and behavioral alteration by acupuncture may be associated with the central nervous system (CNS) in the brain. The purpose of this study was to examine the sedative effect of acupuncture and the mechanism of that by electroencephalographic spectral edge frequency 95 in dogs.

Materials and methods: The acupuncture points "GV20 and Yintang" were applied for 20 min. Sedation level was assessed before, during, and after acupuncture by spectral edge frequency 95 values and the Ramsay sedation score. Two antagonists, naloxone and atipamezole, were used to examine the reversal of the sedate effect by acupuncture. The bio-electrical changes on brain were assessed by relative band power analysis and spectral edge frequency 95 analysis.

Results: First, the spectral edge frequency 95 values were significantly reduced during acupuncture on GV20 or Yintang point and returned to the baseline values after acupuncture releasing. The Ramsay sedation score (RSS) also showed the acceptable sedation level during acupuncture. Second, the quantitative EEG values were significantly increased after administration of atipamezole in dogs sedated by acupuncture at GV20 and Yintang point ($p < 0.05$). However, quantitative EEG values in naloxone groups did not show any significant changes between before and after administration of antagonist.

Clinical relevance: In clinics, acupuncture applied at the GV20 and Yintang point would be useful to sedate in dogs. In addition, this study was valuable to evaluate the mechanism of acupuncture-induced sedation which is related with the alpha-2-adrenergic system.

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