

The investigation on histological characteristics of acupuncture points (Bonghan corpuscles) in rat skin

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Abstract

Objective: We hypothesize that the system of acupuncture points and meridians has specific anatomical structure and can be represented as the network Bonghan corpuscles and Ducts that were observed by Bonghan Kim.

In order to test this hypothesis, we conducted research for location and characterization of superficial Bonghan corpuscles and ducts or channels in mammalian skin by using whole-mount immunohistochemistry and multi-photon confocal microscopy.

Methods: CV12, CV14 and LSP acupoint areas were isolated from skin of Wistar rats and studied with immunohistochemical methods for thick sections and whole-mount specimens. Imaging and optical sectioning of the stained samples were performed with (LSM-510MP, Carl Zeiss, Germany). The obtained data sets were processed and analyzed in three dimensions by using Zeiss LSM Image and Image J software.

Results: Immunohistochemical data revealed specific corpuscle-like structure in dermal/hypodermal layer of rat skin (LSP acupoint). Image analysis of three-dimensional data have shown that corpuscle-like structure measures about 300 μ m in diameter and has elliptic shape which was revealed by characteristic distribution and high density of cells. In addition the corpuscle was penetrated and surrounded by fine blood capillaries. Similar results were observed also in CV12 and CV14 acupoints.

Conclusion: The results demonstrate the existence of corpuscle-like structure (Bonghan corpuscle) with specific morphology and histological characteristics which quite differ from already known tissue structures existing in the skin such as hair bulb, Meissner and Pacinian corpuscles. We propose that anatomical relationship of acupoints and meridians to Bonghan corpuscles and ducts is relevant to acupuncture's therapeutic mechanism. Further investigation is required to show physiological function and other specific histological features of Bonghan corpuscle.

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