

## **Aspect of immunological factors for estimating the efficacy of acupuncture and moxibustion**

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Recently, alternative and complementary medicines together with oriental and traditional medicines have attracted much attention. This new interest includes regional medicines from all over the world including aromatherapy and herbal medications, acupuncture, moxibustion and yoga. The background is that many diseases such as cancer, AIDS, allergy and autoimmune disease, are treated in isolation without any other special modern therapies. The problem with this rapidly expanding field is how it should be standardized. Here, I would like to propose a novel means by which the efficacy of these therapies can be objectively evaluated.

Most alternative medicine works by affecting one or more of the systems inside the body. For example, recent studies revealed that herbal medicines caused an interaction between the immune system, the endocrine system and the nervous system. Therefore, observing the immune system by sampling peripheral blood might be a useful indicator for standardizing alternative medicine therapies. Additional sampling methods may include a subjective evaluation of physical status and quality of life (QOL) assessments. We examined the quantitative as well as qualitative effects of acupuncture by measuring peripheral white blood cells, as well as granulocyte count and lymphocyte count (by which we calculated the ratio of granulocytes/lymphocytes). Additionally, we measured CD positive cells and cytokine-containing cell count as a marker of T cells, B cells, macrophages and NK cells. Fifteen milliliters of peripheral blood were obtained from seventeen healthy volunteers, aged 21 to 51, and analyzed by FACS analysis. There was a statistically significant increase in the number of CD2+, CD4+, CD8+, CD11b+, CD16+, CD19+, CD56+ cells as well as IL-4, IL-1 $\beta$ , IFN- $\gamma$ -containing cells after acupuncture.

These results indicate that acupuncture may regulate the immune system and can promote the activity of humoral and cellular immunity, especially NK cells. These results imply that acupuncture may be useful in preventing/treating virus infection, especially viral hepatitis, as well as cancer prevention. When used as a treatment for allergic diseases, acupuncture reduced the intensity of the inflamed condition without inhibiting immunological cells (in both number and function) or humoral antibody production.

In this presentation, I would like to emphasize the efficacy of acupuncture through immunological factors such as leukocytes, granulocytes and lymphocytes quantitatively and qualitatively as the standard scale for CAM (alternative and complementary medicines).

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