

Treatment of Local and Distance Sites for Diseases of the Locomotor System

-Indications and limitations of local therapy, indications and limitations of distant therapy-

Coordinator: **Takayoshi Ogawa**

Tokyo Eisei Gakuen

Shuichi Katai

Tsukuba University of Technology

Shoji Shinohara

Meiji University of Integrative Medicine

I. Introduction

Phrases like "simultaneous treatment of root and tip" regarding acupuncture and moxibustion therapy indicate that in almost all cases treatment of the region where the symptoms are located (treatment of the incidental = locally) and treatment of acupoints on meridians located at a distance where there are no symptoms, or that are used for the regulation of qi and blood (treatment of the fundamental), or treatment of acupoints known through experience to be effective for the particular condition are combined. While in cases of diseases of internal organs or metabolic diseases determination of specific locations is difficult, therefore, the function of distant needling therapy and local treatment of diseases of the locomotor system may be the subject of debate. Moreover, in order to examine which of these different treatment forms is safer and more efficient, symposia were held on the 51st annual conference of the Japan Society of Acupuncture and Moxibustion (in Ibaragi), the 52nd conference (in Kagawa) and the 53rd conference (in Chiba), spanning the period of these three years.

II. Efficiency of distant needling

Local treatment is performed on the soft tissues in the region of the symptoms, making the mechanisms of the therapeutic effects easy to understand. For example, the relief of excessive muscle tension is easy to understand. However, mechanisms in the case of distant needling and its efficacy still remain difficult to understand. At the 52nd conference a symposium was held to examine the efficacy of distant needling. Mr. Shinohara from the Meiji University of Integrative Medicine, conducted an experiment using intradermal needles on spring points of the relevant meridians

versus sham acupuncture and spring points of other meridians, demonstrating the efficacy of channel sinew and distant needling therapy. Dr. Katai from the National University Corporation Tsukuba University used the point Chikuhin (zhubin KI9) as well as treatment of the arms and legs in patients with low back pain or cervical pain and showed that distant needling alone is also highly effective. Dr. Shiraishi from the Oriental Medical Research Institute used the point Ichu (weizhong, BL40) among the four command points and showed that the reactions it elicited at Jinyu (shenshu, BL23) were even more marked than those obtained by direct stimulation of Jinyu directly, suggesting the effectiveness of distant needling. Mr. Keiji Yoshikawa from the teaching staff training institute within the Department of Physical Therapy of the National University Corporation Tsukuba University, reported the effectiveness of local treatment and its contraindications, indicating that distant needling therapy is associated with a high degree of unreliability and low reproducibility, and therefore did not acknowledge its necessity.

Regarding the question of whether to perform both "local treatment and distant needle therapy" Mr. Shinohara, while selecting mainly distant sites, performed local treatment in cases, when manifestations of blood stasis and phlegm were restricted to certain regions. Dr. Katai used local treatment in case distant needling therapy had been ineffective and Mr. Yoshikawa had decided not to use distant needle therapy at all. Dr. Shiraishi did not deny the benefits of local therapy, but emphasized his opinion, that depending on the selected region stimulation of distant sites is capable of modulating the elicited reactions. In particular the effects obtained by stimulating distant sites would be enhanced, if the retained needles are in addition stimulated electrically, indicating that an explanation based solely on distant needling effects mediated via the nervous system would be difficult. Mr. Tomomasa Moriyama of the National University Corporation Tsukuba University reported results, suggesting that the treatment at distant sites may be effective from a point of view of movement physiology because of the regulation of muscle force alignment.

Therefore, the consensus is that "stimulation of distant sites" is also effective for the treatment of diseases of the locomotor system. Mr. Yoshikawa considered the reported evidence of the other three speakers insufficient and thought, that the definition of local and distant sites needs to be revised. Even if the site at which the symptoms are located is considered local, the contact of the needles with skin and muscles may also be considered a local contact, or could it be considered to be a stimulus of the entire dermatome, muscle bundle or even the entire muscle? Also, when the needle stimulation is considered to be transmitted to the central nervous system after being picked up by some form of receptor sensory nerves, it may be related in some form or other to the autonomic nervous system etc. If that is true, then what used to have been considered local mechanisms could possibly be the mode of action initiated by distant sites.

III. Definition of local and distant needling therapy

A questionnaire was conducted among members of the society, who have been enrolled in it for many years to investigate the definitions and the mechanisms imagined to be underlying the therapeutic effects as well as the basis for choosing different treatment modalities. Mr. Ogawa of the Tokyo Eisei Gakuen College reported that there were no significant differences pertaining to the definition of local and distant schools of thought. The concept of "local sites" was imagined mostly as meaning the location of tenderness, sites at which a radiating sensation may be elicited or the affected sites themselves, while "distant sites" referred to regions, from where reactions in meridians, nerves, reactive spots, tender spots, or even systemic reactions may be induced or some other form of active sites.

Moreover, based on the results of the above mentioned questionnaire, the definition of local and distant sites was determined as follows.

Local sites:

Sites of tenderness accompanying the manifestation of the symptoms, sites of injury, or from where a radiating sensation (like the conduction of a nerve impulse) can be elicited and the site of lesion itself. Stimulation applied for therapeutic purpose at these

sites provides relief of excessive muscle tension, thereby alleviating nerve entrapment, triggers axon reflexes and has in addition, psychological effects associated with the provision of treatment of affected parts.

Distant sites:

Not restricted to the site of symptom manifestation, treatment applied to sites located along the course of the meridians can be expected to elicit a generalized reactions (autonomic nervous system regulation, central nervous system response etc.), where the stimulation of the relevant sites may not only have therapeutic purpose, but can be expected to have generalized effects.

IV. Mechanisms of distant needling therapy

At the 52nd and 53rd conferences the mechanisms underlying therapeutic effects were examined. Mr. Shinohara investigated the effects of intradermal needles for the treatment of delayed pain based on a channel sinew model and observed that exercise load of the biceps brachii muscle lowered the tenderness threshold along the lung meridian, indicating the possibility of the appearance of selective peripheral reactive spots during the development of delayed muscle pain that can be used as therapeutic points. He also mentioned that at clinically useful acupoints it might be highly likely that hypersensitivity phenomena emerge during the generation of experimentally induced pain, which provides experimental evidence for the distant needling therapy. Dr. Shiraiishi showed, following his line of thought from the previous conference, that experimental results of distant needling applied to stimulate Ichu (weizhong, BL40), Shozan (chengshan, BL57), Hiyo (feiyang, BL58), Konron (kunlun, BL60), Yoryosen (yanglingquan, GB34) are capable of producing a variety of changes in the reaction observed at Jinyu (shenshu, BL23) in patients with low back pain. This does not necessarily require stimulation of points located on the same meridian, but showed that it is possible to modify the reactivity within certain zones. Furthermore, the needling effects from the skin modifying the input system neuroanatomically are not specific or selective. This indicated that local treatment

is not necessarily required and the treatment at distant sites can be expected to have sufficient clinical effects.

Mr. Akihiro Ozaki from the Meiji University of Integrative Medicine made a presentation based on results from human and animal experiments showing that needling both in close proximity and at distant sites have the effect of inhibiting kinetic reflexes, so that both local and distant sites were found to be effective. The stimulus information provided both in close proximity of the lesion and at distant sites then converges onto the same neuron and is thereupon subject to modulation, so that the differences in information processing at the neuronal level may be strongly involved in the manifestation of different effects. Investigations of the differences in the effects obtained through local and distant treatment may thus also need to take into account differences in the input forms other than the site of stimulation, symptom patterns etc. They need to be discussed comprehensively. Mr. Moriyama expounded on the basis of biomechanics indicating that a poor condition at a certain distant location may influence prevailing local conditions. He introduced the meridian test as one useful method to find poor local conditions that may be difficult to be realized by the patient him/herself, but nevertheless could lead to the development of disorders. That means that the microscopic observation employed during examination and treatment may require a macroscopic point of view including the entire body into its field of vision, so that the above mentioned two different ways of looking at a certain object should not be separated. Only together can they represent the essential concept of treatment. From the audience, questions were asked and discussed, indicating that the mechanisms of analgesia in case of needling nerves and muscle cannot yet be understood, or that the effects of both local and distant treatment are based on the same mechanisms, thus making their clarification a task for the future.

Mr. Katsuhiko Yamada of The Japan School of Acupuncture, Moxibustion and Physiotherapy reported that treatment of distant sites in cases of inflammatory lesions associated with tissue injury, localized muscle spasms or structural causes seems to have little

potential to improve the condition, while local treatment is effective here. Yet, the local treatment may in certain cases also aggravate the condition.

Mr. Kawakita from the Meiji University of Integrative Medicine reported that regarding inhibition of pain the DNIC (diffuse noxious inhibitory controls) phenomenon and involvement of humoral factors like endorphin in the manifestation of pain phenomena are both activated regardless of where on the entire body the stimulation is applied, while axon reflexes occur only locally at the site of the stimulation.

Mr. Ozawa from the National University Corporation Tsukuba University explained that the needling stimulation produces locally at the site of the stimulation via axon reflexes an increase in blood flow and at the same time via spinal reflexes or supraspinal reflexes various responses in various internal organ effectors. Also, he stated that the mode of action varies depending on differences in the site of stimulation and type of effector.

V. Pathologic conditions for which treatment at local and distant sites is effective:

A questionnaire was conducted among 41 authoritative people in this field representing the different treatment styles. The results showed that local treatment was considered to be effective for conditions including diseases of the locomotor system, bruises, sprains, external injuries etc. where the local symptoms are clearly defined and the site of the lesions is often restricted locally, whereas stimulation at distant sites seemed to be effective for conditions other than diseases of the locomotor organs, like diseases of the viscera and bowels, and employed in case local treatment had been ineffective, or in cases where the point selection was based on more than 70% on classical meridian theory.

VI. Conclusions

Throughout the three symposia, treatment of local and distant sites was considered separately while common concepts were thought to have been found. The effectiveness of local treatment for diseases of the locomotor system and its clinical significance was recognized. The mechanisms of distant needling

therapy and its effectiveness were also acknowledged. In particular, it was acknowledged that needling of the arms or legs induces systemic responses through supraspinal reflexes, so that in case the affected areas is located on the arms or legs, the locally placed needles do not only elicit a local, but also a generalized response. Moreover, in case the affected region is located on the trunk, it was generally agreed that there is a high probability for the need to also needle the arms and legs. However, while researchers in the field of basic research emphasized the common aspects (non-specific responses), suggesting just needling anywhere, even if performed by beginners, would still be effective, because this can be called an inherently human physiologic response. Because of the very presence of this response, acupuncture and moxibustion therapy has been used continuously over several thousand years. Further in-depth research is required in order to enhance the effectiveness of acupuncture and moxibustion specific effects superimposed on the above mentioned non-specific response, or else to establish still more effective therapies.

The differences between the conditions for which either the treatment of local or distant sites is effective or specific could also be clarified to a certain extent, but it cannot be denied, that this is still only the beginning. For example, in case of low back or leg pain needling of Ichu (weizhong, BL40) or similar points on the legs has a completely different significance, even if the results were the same, depending on whether this site is needled, because it is the site of symptom manifestation, or whether a reactive spot has been needled in order to cure the low back as the causative site for the low back or leg pain. Although these symposia helped to clarify this point, the expectations based on the initially planned scope, covering not only the muscular and skeletal systems, but that also included internal organs or metabolic systems in the scope to be clarified were not met. In-depth research is going to be continued and similar symposia will be held.

Responsibility for the wording:

Takuro Ogawa, Major course of clinical education,
Tokyo Eisei Gakuen College,