How do acupuncture and moxibustion act on chronic pain relief. -Role of polymodal receptors in their actions-

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The nature of acupuncture point still remains unclear although numerous clinical trials have demonstrated that acupuncture undoubtedly has various therapeutic effects. In this paper a rational explanation of the acupuncture point as the sensitized polymodal receptor (PMR) was proposed.

The physical nature of acupuncture and moxibustion stimuli seems quite different, however both procedures have been used for managing various disorders based on the same meridian theory and acupuncture points. Recent archaeological study has clearly demonstrated that moxibustion (cauterization) is more primitive procedure than acupuncture, and the concept of meridians was developed in the experiences of moxibustion therapy.

It is very clear that various sensory receptors are activated by acupuncture and/or moxibustion, however there are very few candidates that can be excited by both stimuli. PMRs are one of the most possible candidates, as they can be activated by mechanical, thermal and chemical stimuli. The functional characteristics of the PMRs are in accordance with those of acupuncture action in the periphery, and tender/ trigger points, one of the primitive features of acupuncture points, are assumed to be the sites of sensitized PMRs.

Regarding pain relief by acupuncture, various endogenous opioid-mediated mechanisms, it requires an induction time of 15-20 min, have been well established. It is a possible mechanism of acupuncture in an experimental condition but it could also be assumed as a kind of stress induced analgesia. On the other hand, actual acupuncture and moxibustion treatment in the acupuncture clinic produces more rapid analgesic effect, then diffuse noxious inhibitory controls (DNIC) is proposed as a possible mechanism. The DNIC produces widespread analgesic effect in the remote area apart from the site of conditioning stimulation, and induced by mechanical pinch, noxious heat and injection of algesic substances to the skin and/or deep tissues. These stimuli are well known stimulants for the PMRs, so it is reasonable to assume the PMRs as the inputs of DNIC phenomena. In our experimental model using repeated eccentric contractions of the muscle produced a local tenderness at the palpable band and induced a typical referred pain pattern by pressure application, and repeated indomethacin injections inhibited the production of the experimental trigger point.

These several lines of evidence suggest that the acupuncture points are the sites where the PMRs are sensitized and such conditions might be repeatedly produced by various biomechanical stress, insufficient blood supply and metabolic products.