A Possible Explanation for the Effect of Acupuncture on Pain

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Abstract

The physiological basis for the interruption of pain by acupuncture for anesthesia and analgesia has been of great interest in the last few years, since communications with Red China have become more common. The physiological basis for the effect of acupuncture on pain is still conjectural, but may well be related to a peripheral field effect from differential sensory input. To study this phenomenon, twelve cats were used in an acute preparation. Responses to C fiber input were recorded in the medial thalamus, both by average evoked responses and by single cell recordings with microelectrodes. When large myelinated fiber input from a different portion of the body was used in conjunction with noxious input, gross evoked responses to pain were clearly diminished, and single cell responses were altered. This modulation of C fiber input by large fibers was long lasting – a single interaction between two inputs led to a diminution of evoked responses to the noxious stimulus alone lasting up to 1 h. Analysis of single cell responses to noxious and non-noxious input to the thalamus suggested that a supraspinal gating mechanism was responsible for the different types of cellular responses being recorded in the centre median pulvinar and parafascicularis area. This supraspinal gating is discussed in relation to the analgesic effect of acupuncture nerve stimulation and other methods of pain relief as well as the theoretical method of processing sensory information in the thalamus.