

عنوان مقاله:

A Simulation study on the spatial pattern of fiber activation in response to interferential currents stimulation

محل انتشار:

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خلاصه مقاله:

Interferential current is one the most popular electrical currents used in electrotherapy. Despite its clinical popularity, there have been limited studies assessing its mechanism of action, and claimed benefits. In this study a precise model of peripheral nerve fibers was implemented to evaluate the response of fiber to the interferential stimulation. The currents were applied by two pairs of point electrodes perpendicular to each other in an infinite homogeneous medium. The activation pattern of the fiber was studied for different fiber positions relative to the electrodes. The effect of different amplitude modulation frequencies was also evaluated. The results showed that the fiber may fire continuously or periodically with frequencies equal or higher than the modulation frequency, or may be blocked by the currents, based on its position relative to the electrodes. In addition, the temporal pattern of activation of the fiber is dependent to the modulation frequency. The results can explain the mechanisms underlying some of the characteristics and benefits of interferential stimulation that have observed previously in experiments.

کلمات کلیدی:

Electrotherapy , Transcutaneous electrical stimulation , Simulation , Amplitude Modulation Frequency

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