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Suppléments - Abstracts

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The stimulation of the nerve as a factor of potentiation of the action of the local anesthetic solution. An in vitro electrophysiological study.

The purpose of this experimental study, is to examine and evaluate the contribution of the stimulation of the nerves, on the potency of lidocaine electrophysiologically. 24 sciatic nerves of Wistar rats, after special preparation, were divided in two groups of 12 (group A and B). The nerves were properly placed, in a special nerve bath of two parts, which contained 5 ml of a special composition and stable temperature physiological solution. The nerves were connected with stimulating and recording electrodes, and the recording of the compound action potentials was possible through an electrical stimulator, amplifier and a two channel pulse-recorder. The signal from the pulse-recorder was transferred at 1 min intervals through a special card to a personal computer for storage and further detailed analysis of the recordings.

The nerves of group A received 100 μ l of a solution of lidocaine 2% after a continuous for 20 minutes electrical stimulation which also remained after the application of the local anesthetic solution. The nerves of group B received the same volume of lidocaine 2% after a period of 20 minutes without stimulation. These nerves were stimulated when the reduction of the original value of the compound action potential of the nerves of group A was 50%. We recorded the time in minutes of the reduction of the original value by 50% for every nerve after the application of lidocaine. The statistical analysis by the Wilkinson method for independent samples indicated that the action of lidocaine is statistically considerably improved ($P < 0.01$) when applied in nerves under stimulation.