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Evoked Activity of Dorsal Root Afferent Fibers of the Rat Spinal Cord in Experimental Diabetes Mellitus

Oleksandr G. Rodinsky
Dnipropetrovsk Medical Academy, Health Ministry of Ukraine, Dnipropetrovsk, Ukraine

Elena G. Zinov'eva
Dnipropetrovsk Medical Academy, Health Ministry of Ukraine, Dnipropetrovsk, Ukraine

Oleksandr S. Trushenko
Dnipropetrovsk Medical Academy, Health Ministry of Ukraine, Dnipropetrovsk, Ukraine

Maria J. Kachan
Dnipropetrovsk Medical Academy, Health Ministry of Ukraine, Dnipropetrovsk, Ukraine

ABSTRACT

We analyzed the functional status of the dorsal roots of the spinal cord in experimental diabetes mellitus (DM) by examining the action potential (AP) parameters, namely, threshold, chronaxie and dynamics of the dorsal root excitability. An increase in the threshold for excitation 1.5 times ($P < 0.001$) and a decrease in the amplitude of action potential by 21.7% ($P < 0.05$) have been revealed when compared to the control animals. A significant increase in the response to the 2nd stimulus was also observed when applying the paired stimuli to the sciatic nerve in animals with experimental DM. When applying the stimuli of increasing intensity, amplitude of action potential in animals of the experimental group decreased significantly. It has been concluded that hyperglycemia makes adjustments to the processes of excitability and refractoriness in the afferent fibers of the spinal cord.

KEY WORDS: diabetes mellitus, diabetic neuropathy, dorsal root of the spinal cord

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