



Introduction

To investigate the effect of normal saline(NS) of different temperature on morphological changes and nitric oxide synthase(NOS) expression of spinal cord.

Methods

The spinal canal of 96 SD adult rats was opened at T9. which of 24 rats was flushed with 37° NS,24 with 20° NS,24 with 4° NS respectively,and which of 24 rats in control group received no flushing. The spinal canal was closed one hour later, and the spinal cord was taken out 24 hours later. Then the water content in spinal cord was determined by dry-wet method. The morphological changes of spinal cord were observed under light microscope and the electronic microscope. The amount of NOS-positive neuron was measured by β -NADPH histochemical methods.

Results

The water content in spinal cord was(66. 53±0. 61)% in control group, (66. 75±1. 00)% in 37° group, (70. 55±0. 77)% in 20° group, (71. 92±2. 50)% in 4° group. The spinal cord of control group and 37° group contained less water than that of 20°group and 4° group. There were no obvious morphological changes in the control group and 37° group. In 20° and 4° groups,the demyelination of axon, swelling of cell body and the disappearance of tigroid body were observed under light microscope,the partial disaggregation of medullary sheath,swelling of mitochondria and disappearance of mitochondria crista could be observed under electron microscope. The amount of NOS-positive neuron in spinal cordwas(18. 75±2. 12), (18. 63±1. 41), (14. 75±1. 67), (8. 13±1. 25)in control,37°,20°and 4°groups, respectively. The control group and 37° group showed more NOS-positive neuron than those of 20° group and 4° group.

Conclusions

NS below 20° can injury spinal cord. It is suitable to choose 37° NS to flush brain and spinal card during operation.

Learning Objectives

By the conclusion of this session, participants should be able to exchange experience.

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