

뇌혈류의 저하는 기능적 불활성화 및 이에 따른 경뉴우런 변성(transneuronal degeneration)에 의해 이차적으로 발생함을 시사한다.

## 5. The Effect of Naloxone on the Size of Cerebral Infarction and the rCBF in Focal Cerebral Ischemia of Rats

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To evaluate the effect of naloxone on the focal cerebral ischemia, focal cerebral ischemia of rat was induced by an occlusion of middle cerebral artery (MCAO) and the size of infarction & rCBFs were measured at 24 hours after left MCAO. The experimental groups were divided into a control (saline-treated) and naloxone-treated (low-dose and high-dose) groups. The rats were given 1 mg/kg iv (low-dose), 4 mg/kg iv (high-dose) of naloxone 30 min before MCAO and then infused continuously at rates of 0.5 mg/kg/hr (low-dose) and 2 mg/kg/hr (high-dose) over next 1 hour by an infusion pump. Coronal sections (20  $\mu$ m-thick) of the rat brain were stained by 2% 2, 3, 5-triphenyltetrazolium chloride solution and the size of infarction was measured by planimeter. rCBFs were measured by an autoradiography using  $^{14}$ C-iodoantipyrine. The results were summarized as follows:

- 1) There were no significant changes of blood pressure during the infusion of naloxone and there were no significant differences of pH,  $PCO_2$ ,  $PO_2$ , blood glucose and rectal temperature among saline-, low-dose and high-dose naloxone-treated groups.
- 2) High-dose naloxone-treatment reduced significantly the size of infarction.
- 3) The serial 1 mm-band rCBF measurement of

cerebral cortex showed that there was a slight tendency of a marginal rCBF improvement in a small portion of high-dose naloxone-treated group.

4) The areas of  $>50$ , 25-50, and  $<25$  ml/100 g/min of rCBF values at the coronal sections 4, 6, 8 mm from the frontal pole were measured. The area of  $<25$  ml/100 g/min of rCBF was reduced significantly in the high-dose naloxone-treated group compared to the saline-treated group.

In summary, these results indicate that high-dose naloxone pretreatment reduced the size of infarction and improved the rCBFs in the focal cerebral ischemia of rats.

## 6. Balloon Test Occlusion of the Internal Carotid Artery with $^{99m}Tc$ -HMPAO Brain SPECT

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To period preoperatively the safety of permanent occlusion of an internal carotid artery with  $^{99m}Tc$ -HMPAO brain SPECT from an objective point of view.

Twenty-four patients underwent balloon test occlusion (BTO) of the internal carotid arteries because of neck and skull base tumors. The authors assessed the uptake of both middle cerebral artery territories before and during BTO with  $^{99m}Tc$ -HMPAO brain SPECT, and compared the results with other factors (neurologic examination, arterial stump pressure, and electroencephalogram).

Nineteen patients had not experienced neurologic deterioration or any problem during BTO. Their comparative uptakes of the middle cerebral artery territories were 95%-101% of the pre-BTO state. The remaining five patients showed severe neurologic symptoms such as transient hemiplegia and unconsciousness. Their comparative uptakes of the middle cerebral artery territories were 77%-85% of