عنوان مقاله:

Investigation of sympathetic mechanism of inverse relationship between scalp and leg blood flow with increasing intracranial pressure in the rabbit

محل انتشار:

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خلاصه مقاله:

Intracranial pressure (ICP) is one of most important factors in determining health and function of cerebroscular system. However the methods of measuring ICP are usually invasive . In an attempt to find a noninvasive method to assess ICP, in previous study web found a reverse relationships between changes in ICP and blood flow in scalp (SBF) and leg skin (LSBF) . In this study the role of sympathetic nervous system in mediating this relationship was Investigated. Ten NZW rabbits were anaesthetized and their femoral artery and vein cannulated to record blood pressure, and inject the drugs. Another cannula was inserted into the subdural space following the skin incision and craniotomy in parietal region. Scalp and leg skin areas were shaved and the laser Doppler flowmeter probes were placed over them to record the flow, on two channels of recorder . Arterial pressure and ICP were recorded on the other two recorder channels through blood pressure transducers connected to related cannulae. After recording base line values, phentolamine (a- blocker) was injected through venous (۱.۲ mg/ kg); and ۴۵ min later, ICP was increased in ۹ steps from ۱.۲ +_ ۰.۲ mmHg to ۲۰+_۰.۲ mmHg. (۲ mmHg each step, ۳ min apart) by augmentation of a saline reservoir connected to ICP cannula. Blood pressure (BP) . SBF and LSBF were recorded simultaneously.BP was reduced from ۹۱.۵+_۳.۷ to ۷۲.۵+_۲.۲ mmHg, SBF from ۱۵۷+_۲۸ to ۳۷+_۴۰ and LSBF from ۱۶۹+_۲۶ to ۱۱۴+_۲۰ arbitrary units by phentolamine. ICP increment had no effect on SBF, but increased the LSBF to normal level (۱۷۳+_۴۳ arbitrary units), and increased BP to ۱۰۰.۶+_۶.۷ mmHg . The correlation coefficient between changes in ICP and SBF was zero (compared to -۰.۸۴ in normal animals in previous study) and between ICP and LSBF was +۰.۱۹ (compared to -۰.۳۹ in normal animals) . Overall the results showed that, sympathetic nervous system is the mediator of changes in SBF and LSBF due to changes in ICP as reverse relationships between ICP and SBF and LSBF in normal animal was blocked and changed to direct relationship respectively in phentolamine treated animal.

کلمات کلیدی:

Alteration of intracranial pressure, skin blood flow, sympathetic nervous system