

Auricular acupuncture and the neurochemical indexes of convulsive activity

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Introduction

Auricular acupuncture (AA) is applied in the complex treatment of convulsive syndrome. Currently there are multiple hypotheses that propose the involvement of neurochemical cerebral mechanisms in the anti-convulsive actions of AA.

Purpose

The study of AA's influence on monoamine concentrations in different cerebral structures in animals with experimental convulsive activity.

Material and methods

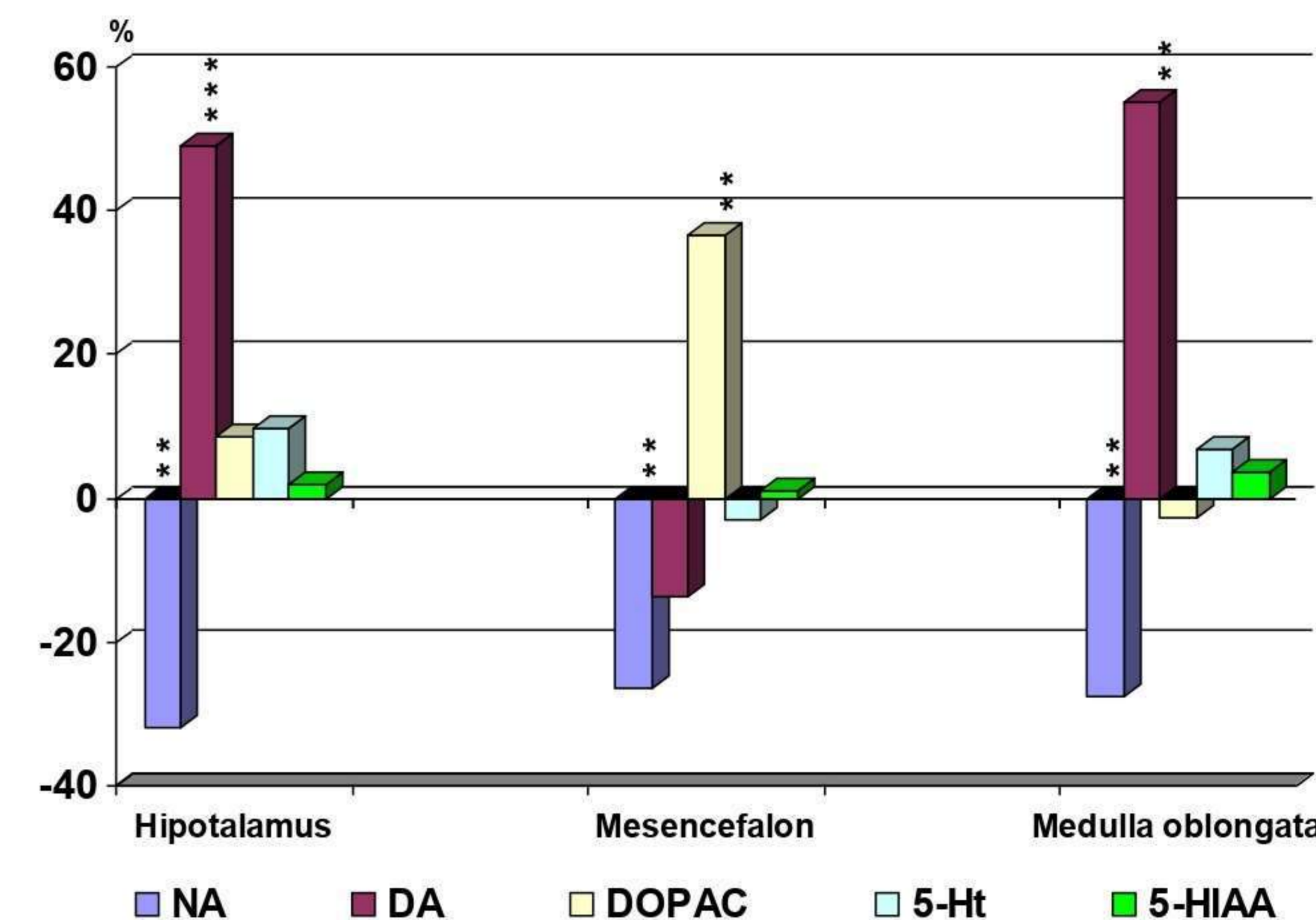
The study was conducted on white rats from the Wistar line (n=100) where the syndrome of tabagic abstinence was modelled, and the cerebral convulsive activity was monitored through EEG. Monoamines were determined via the CLIR method in the hypothalamus, midbrain and the spinal bulb. The ear acupuncture points with a decreased skin electrical resistance were stimulated.

Results

After performing AA a noradrenaline (NA) drop (compared to initial indexes), was registered in the: hypothalamus by 32% (p<0,01); midbrain by 49% (p<0,001) and the spinal bulb by 27% (p<0,001). Dopamine (DA) levels had risen in the hypothalamus by 49% (p<0,001) and in the spinal bulb by 55% (p<0,001). Serotonin (5-HT) had no significant changes in the studied cerebral structures (p>0,05). After AA stimulation, a tendency to normalize the EEG picture was registered, with a significant reduction of the paroxysmal index (p<0,05).

Keywords

Auricular acupuncture, paroxysmal activity, monoamines.



Note: the veracity of the differences from the initial data - * p<0,05; ** p<0,01; *** p<0,001; the “zero” line represents the concentration of monoamines in the brain of animals in the period of abstinence.

Fig. 1. Comparative assessment of the change in monoamine concentration (expressed in%) in the brain structures of animals under the acupuncture treatment on the background of abstinence in relation to animals in the period of abstinence without the application of treatment.

Table 1. Convulsive activity in animals treated with acupuncture on the background of nicotine withdrawal

Applying acupuncture on the background of abstinence	Total number of animals included in the experiment	Number of animals	
		with no reaction	running animals
I-st day	64	60	4
II-nd day	64	59	5
III-rd day	64	63	1
IV-th day	64	64	0

Conclusions

In the experimental animals, AA had reduced convulsive activity in parallel with the differentiated activity of the neurochemical indexes: NA – decreased, DA – increased, 5-HT – no significant changes.