

Potentiated Antibodies to μ -Opiate Receptors: Effect on Integrative Activity of the Brain

V. V. Geiko, T. M. Vorob'eva, O. G. Berchenko, and O. I. Epstein*

The effect of homeopathically potentiated antibodies to μ -receptors (10^{-100} wt %) on integrative activity of rat brain was studied using the models of self-stimulation of the lateral hypothalamus and convulsions produced by electric current. Electric current was delivered through electrodes implanted into the ventromedial hypothalamus. Single treatment with potentiated antibodies to μ -receptors increased the rate of self-stimulation and decreased the threshold of convulsive seizures. Administration of these antibodies for 7 days led to further activation of the positive reinforcement system and decrease in seizure thresholds. Distilled water did not change the rate of self-stimulation and seizure threshold.

Key Words: *potentiated antibodies to μ -receptors; convulsive seizures; brain self-stimulation*

Here we studied the effect of potentiated antibodies to μ -receptors (PAB- μ R, 10^{-100} wt %) on integrative activity of the brain.

MATERIALS AND METHODS

We performed 2 series of experiments. In series I we studied the effect of PAB- μ R on self-stimulation of the lateral hypothalamus, which reflects functional state of the positive reinforcement system. In series II we evaluated the influence of PAB- μ R on convulsive seizures produced by stimulation of the ventromedial hypothalamus; this procedure serves as a model of negative emotions.

Experiments were performed on 16 adult outbred albino rats weighing 230-250 g. Nichrome glass-insulated electrodes (diameter 100 μ) were stereotactically implanted into the brain (E. Fikova and D. Marshal) [1].

Series I was performed on 8 rats with the reaction of lateral hypothalamus self-stimulation. After stabilization of self-stimulation behavior, the effects of single or repeated treatment (7 days) with PAB- μ R on the rate of self-stimulation and behavioral parameters were studied. Control rats received distilled water.

In series II electrical stimulation of the ventromedial hypothalamus was performed on 8 rats. The effect of single peroral treatment with PAB- μ R (1 drop) on convulsive seizures, fear, aggression, and vocalization was studied. Control animals received distilled water

(1 drop perorally). Seizure thresholds were recorded at 5-min intervals for 1 h. The threshold current, severity of the reaction, and behavioral changes were determined.

Self-stimulation of positive emotigenic zones in the lateral hypothalamus was performed with rectangular electrical pulses (100 Hz frequency, 0.5 sec pulse duration) for 60 min. The effect was recorded on an automatic counter. Stimulation of negative emotigenic zones in the ventromedial hypothalamus was performed with sinusoidal current (50 Hz frequency, 2-50 μ A).

The results were analyzed by nonparametric Wilcoxon test. PAB- μ R were obtained from the "Materia Medica Holding" Research-and-Production Company.

RESULTS

In series I single administration of PAB- μ R increased the rate of self-stimulation and stimulated exploratory activity and emotionally positive grooming. Treatment with PAB- μ R in the same dilution for 7 days significantly increased the rate of self-stimulation and produced behavioral changes (similarly to single admini-

TABLE 1. Effect of PAB- μ R on the Rate of Self-Stimulation Reactions in Rats over 5 Minutes

Terms	Control (water)	PAB- μ R
Baseline	345	
After the 1st treatment	359	387
After the 7th treatment	350	436

Institute of Neurology, Psychiatrics, and Narcology, Ukrainian Academy of Medical Sciences, Kharkov; *"Materia Medica Holding" Research-and-Production Company, Moscow

stration). Distilled water had no effect on the rate of self-stimulation in control rats (Table 1).

In series II we observed a decrease in seizure thresholds 5 min after single administration of PAB- μ R (19.0 ± 2.0 vs. 28.6 ± 3.5 μ A in the control). In 50% rats seizure thresholds increased over the next 15 min, but did not reach the baseline level. Twenty minutes post-injection this parameter decreased to 6.5 ± 0.6 μ A and remained at this level for 1 h. The animals displayed strong negative emotions of fear and avoidance.

Repeated treatment with PAB- μ R for 8 days increased seizure thresholds to 60.0 ± 8.5 μ A. In 20% rats threshold current producing convulsive seizures cau-

sed transformation of negative emotiogenic zones of the hypothalamus into positive zones. Distilled water had no effect on seizure thresholds in control animals (30.6 ± 3.5 and 29.5 ± 6.5 μ A before and after treatment, respectively).

Our results indicate that PAB- μ R produce different effects on the mechanisms of positive emotional reinforcement and convulsive seizures.

REFERENCES

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