It is interesting to note that, by contrast with previous investigations [2, 4], in which terrilytin had not only lytic properties, but also certain toxic properties, manifested even within the range of effective therapeutic doses, in the present study no side effects were found from the use of much larger doses of terrilytin. In the writer's view, the reason for this is that the solvent used for the terrilytin was not physiological saline but a solution of polyvinylpyrrolidone, which has a marked detoxicating action, has a beneficial effect on the systemic and regional hemodynamics, and restores the disturbed acid-base balance [6, 7].

**LITERATURE CITED**

7. S. B. Fel'dman, The Early Diagnosis of Cardiac Failure [in Russian], Moscow (1976).

SIMULATION OF DETERMINANT AND DEPENDENT FOCI OF EPILEPTIC ACTIVITY IN THE RAT CEREBRAL CORTEX

R. F. Makul'kin, A. A. Shandra, and B. A. Lobasyuk

Foci of increased activity with independent firing patterns were created by means of weak solutions of strychnine in acute experiments on rats. A hyperactive focus of excitation created by means of concentrated strychnine solutions played the role of determinant structure. Its role was to determine the character of activity of the other epileptogenic foci, to enhance their paroxysmal activity, to combine them into a single functional complex, and to determine the behavior of the whole complex. This complex could be destroyed by suppressing the activity of the determinant focus. Elimination of any of the dependent foci forming the complex did not disturb the complex itself. These investigations confirm, on a new model, the general concept of the role of determinant structure in the activity of the CNS.

**KEY WORDS:** determinant focus; strychnine; neocortex; epileptic complex.

It was shown previously [2, 3] that a focus of powerful excitation created with the aid of strychnine in the cat cerebral cortex plays the role of determinant structure [1], which determines the character of activity of other scattered foci of excitation, enhances excitation in them, unites them into a single functional complex, and determines the behavior of the complex as a whole. Such a complex of foci can be destroyed by suppressing the activity of the determinant focus. The next step was to discover whether the relations established between the foci are connected with species-specific properties of the morphological and functional organization of the cat's brain.
Fig. 1. Role of determinant focus in formation and activity of functional complex of epileptiform activity in rat cerebral cortex. A) Formation of scattered foci of epileptiform activity in areas 2-4 by application of 0.5% strychnine — application of strychnine ended after appearance of activity; B) 15 min after beginning of formation of determinant focus in area 1 of ipsilateral hemisphere by application of 3% strychnine and synchronization of epileptic activity in areas 2-4 with activity of focus 1; C) 8 min after application of 6% pentobarbital to region of determinant focus in area 1, remaining foci continued to generate synchronized epileptic discharges; D) 30 min after application of pentobarbital, further decrease in amplitude and frequency of epileptiform discharges and their disappearance in all foci. Here and in Fig. 2: 1) parietal cortex, 2) somatosensory cortex, 3) occipital cortex, 4) temporal cortex. Calibration: 500 μV, time marker 1 sec.

The object of the present investigation was to study functional relationships between loci with different levels of paroxysmal activity created in the cerebral cortex of the rat, which differs in certain structural and functional respects from that of the cat.

EXPERIMENTAL METHOD

Acute experiments were carried out on albino rats weighing 190-230 g. Under pentobarbital anesthesia (40 mg/kg, intraperitoneally) the skin and subcutaneous areolar tissue were divided by a midline incision from the nasal bones to the occiput. A burrhole in the cranial bones over one hemisphere provided wide access to different parts of the neocortex. The dura in the middle part of the hemisphere was divided by a cruciate incision and its borders were retracted. Before application of strychnine, the area of neocortex was carefully dried with filter paper. Scattered foci of epileptic activity were created by application of filter paper (1-2 mm²) soaked in 0.1-0.5% solution of strychnine nitrate, in different parts of the somatosensory, visual, and auditory areas of the neocortex (areas 1, 2, 3, 4, 7, 17, and 18 after Krieg [4]). The distance between the foci was 5-10 mm. A focus of powerful epileptiform activity was created by application of filter paper (1-2 mm²) soaked in strychnine