p-4. Effect of Ventrolateral Nuclei and Subthalamic area to the Spastic State in Cat

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Although stereotaxic surgery for patients with muscular hypertonic state has been performed, adequate target for relieving spasticity has never been found. In some cases of cerebral palsy with rigospasm, spasticity was decreased as well as rigidity by lesion of ventrolateral nuclei, but in some cases spasticity was increased in spite of diminished rigidity. It seems very important to clarify the relationship between spasticity and areas in vicinity of ventrolateral nuclei.

Firstly, subcortical parts of adult cats were stimulated stereotaxically by electrical shocks with 0.1 msec. pulse duration, 100 cps and 2–5 V. in bipolar electrode. Motor responses were observed at contralateral gastrocnemius muscle and anterior tibial muscle. The points that have motor effects on hindlimbs were plotted on the atlas of Jasper and Ajmone-Marsan, and were presented in caudate nuclei, ventrolateral nuclei, ventral posterior nucleus, centromedian nuclei, subthalamic area and internal capsule. The movements by stimulation were different corresponding to the regional points. The movements produced by stimulation of internal capsule were rather distinct and phasic: by stimulation of subthalamic area a little bit phasic: and by stimulation of ventrolateral nuclei rather vague and tonic.

Secondly, the effects on phasic stretch reflex of area vicinity of ventrolateral nuclei were studied. In spasticity, that seems to be disorder of alpha motor system, clonus occurs most frequently by repetitive phasic muscle stretch. In normal subjects, also, it might be produced easily under ether narcosis. Inserting bipolar electrode (pole distance, 0.8 mm) into the subcortical parts, the effects on the clonus of area in vicinity of ventrolateral nuclei were tested by stimulation with 0.1 msec. pulse duration, 100 cps and 5–10 V. During the electrical stimulation in lateral parts of ventrolateral nuclei and subthalamic area clonus suppressed or completely diminished.

p-5. Subthalamic Stimulation Effect on Epileptic Excitability of Neo-, Archi- and Paleocortical Systems

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Electrophysiological study was attempted to find out the existence of faci-