APPENDIX
A neurochemical basis for many of the epilepsies has long been suspected to result from an imbalance between the various neurotransmitter mechanisms. The present study was undertaken to gain an understanding of the brain neurotransmitter involvement in experimental epilepsy. Adult male Holtzman strain rats were subjected to convulsions triggered by intracortical (somatosensory cortex) penicillin (PCN) administration (100 IU, 0.1 ml) and the regional brain levels of norepinephrine (NE), dopamine (DA) and serotonin (5-HT) were assayed in epileptic rats. The results of the study revealed a decrease in the NE level in the cerebral cortex (cc), cerebellum (cb), caudate nuclei (cn) and midbrain (mb) except an increment in the chronic cortical NE. On the other hand DA level had increased significantly in the cc and mb though in the cb and cn the level had lowered. 5-HT levels were decreased in the cb, cn and mb while in the cc an enhanced level of 5-HT was observed.

The results obtained clearly show that the nervous structures tested with PCN had a different neurotransmitter response pattern which significantly changed along the cortico-cerebellar axis.
Vestibulo-cerebellar participation in protection of duodenal mucosa: possible role of neurotransmitters

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Vestibulo cerebellar lesion in rats produced a decrease in the intracellular presecreted mucus together with a decrease in the norepinephrine (NE) and serotonin (5HT) content of the duodenal tissue. Whereas vestibulo cerebellar stimulation by rotation produced an increase in the intracellular presecreted mucus and an increase in the NE content of the duodenal tissue but very little increase in 5HT content of the duodenum. The results suggest that the vestibulo cerebellum by modulating the tissue content of the neurotransmitter NE and 5HT has a direct influence in the protective mechanism through the intracellular mucus content.
Epileptic rats: changes in hematological profile

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Present study shows the changes in hematological profile after microinjection of Benzyl Penicillin G-sodium salt (100 units) in the somato-sensory cortex of albino rats. Chronic experimental animals made with repeated penicillin application (three times) produced a gradual decrease in neutrophil and eosinophil counts on the 7th, 14th and 21st days and a gradual increase in the lymphocytes, monocytes, total RBC and Hb percentage. Acute epileptic animals made with single microinjection of penicillin showed a small increase in all the parameters viz: total RBC, Hb% and blood differential count with the exception of lymphocyte and total WBC, which had decreased slightly. All the parameters showed a tendency to return back to normal values after 28 days. The epileptic animals are not only prone to secondary infections as suggested from the result of the present experiment but the result focuses on the changes in hematological profile during epileptogenesis on which little or no emphasis has been layed earlier.
PUBLICATIONS IN CONFERENCE PROCEEDINGS:

Sudarshana Purkayastha and Debjani Guha (2003). Participation of histaminergic system in epilepsy. Proceedings of the 90th Indian Science Congress, Bangalore, Section of Medical Sciences (including Physiology), Part III, pp. 6-7.


