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Title: Cerebellar and cerebral electroencephalogram during the high pressure nervous syndrome (HPNS) in rats

Authors: Kaufmann, PG
Bennett, PB
Farmer Jr, JC

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seizures

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Abstract: Electroencephalographic activity of the frontal cortex, cerebellar vermis, and superior vestibular nucleus was recorded in awake rats during the high pressure nervous syndrome (HPNS) by means of permanently implanted electrodes. Power-spectrum analysis revealed a decline in the faster frequencies and an increase in the slow frequencies as the seizure end-point was approached. Effects of compression to 4500 fsw varied from severe tremor and myoclonic jerks to status epilepticus, with seizures occurring at an average depth of 3560 fsw. In all animals, multifocal-spiking activity progressed in severity with increasing depth. The predominant seizure pattern observed was a spike and slow-wave pattern reminiscent of absence seizures. Initial evidence of generalized seizure activity was equally divided between the cerebellum and cortex. It is concluded that the cerebellum participates in HPNS seizures. Possible evolution of the syndrome by loss of Purkinje cell inhibitory influence on subcortical sites that modulate cortical excitability is discussed.

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