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Research report

Amino acids in the neuronal microenvironment of focal human epileptic lesions

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Abstract

Extracellular fluid was topically sampled with a dialysis probe during electrocorticography from the exposed cerebral cortex in 23 patients undergoing epilepsy surgery. Sampling was done in parallel from epileptiform regions and from non-epileptic areas. The former were classified according to the histopathology, into neoplastic, non-tumoral or “special cases”™. The epileptiform regions had significantly higher extracellular concentrations of alanine, glycine and phosphoethanolamine in the majority of the cases.

The excised epileptic lesions were analyzed to provide the corresponding intracellular concentrations of amino acids. Several of the non-tumoral group showed high concentrations of GABA, ethanolamine and alanine. The intra- to extracellular

concentration ratio for amino acids was low for phosphoethanolamine, glycine, serine and glutamine in most of the samples of epileptiform cortex, while the intracellular accumulative ability for ethanolamine apparently was stronger in epileptiform than in normal cortex.



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Keywords

Epileptogenesis; Surgery; Microdialysis; Amino acid

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