

Hippocampal newborn cells in infantile Rasmussen's encephalitis patients. [Portuguese, English]

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Abstract:

Objective: Determine the neurogenesis rate in hippocampal tissue from Rasmussen Encephalitis patients and compare with tissue obtained from human autopsy. **Methods:** Five hippocampal specimens were obtained from surgery to treatment of drug-resistant Rasmussen Encephalitis (RE) (age range from 3 to 15 years old). All patients included in this study were adequately informed and gave their written consent for the scientific project, which was approved by the local ethics committees of the University of Erlangen (Germany) and the Universidade Federal de Sao Paulo (Brazil). All procedures were conducted in accordance with the Declaration of Helsinki (1964). Hippocampal tissue obtained from three human autopsy cases (age range from 5 to 27 years old) were used as control, whose causes of death were unrelated to reports of neurological disease. All specimens were submitted to immunohistochemical and immunofluorescence for neuronal counting (NeuN, H&E) and the verification of neurogenesis (Ki67, vimentin and Sox2) in the hippocampal dentate gyrus. After quantification in an optic microscope, comparisons were performed by analysis of variance followed by Bonferroni's posthoc test (ANOVA-Bonferroni) and non-parametric t-test, with Mann-Whitney posttest. **Results:** The number of neurons in the dentate gyrus was significantly decreased in RE patients when compared to control specimens. In contrast to autopsy specimens, dentate gyrus of RE patients showed an expressive increase in neurogenesis when the marker Ki-67 was used, but no significant changes could be detected with vimentin or SOX-2. **Conclusions:** These results suggest that Rasmussen Encephalitis is accompanied by increased neurogenic rates in the dentate gyrus when compared to specimens obtained from non-epilepsy cases. Besides, the

neuronal cell loss observed in the dentate gyrus of these patients was not accompanied by similar changes in other hippocampal areas. Studies aiming at investigating the relation of these changes with the severe inflammatory process observed in RE are now in progress.