

UC Irvine

UC Irvine Previously Published Works

Title

CORTICOTROPIN-RELEASING HORMONE IS A RAPID AND POTENT CONVULSANT IN THE INFANT RAT

Permalink

<https://escholarship.org/uc/item/836831z2>

Journal

ANNALS OF NEUROLOGY, 30(3)

ISSN

0364-5134

Authors

BARAM, TZ
SCHULTZ, L

Publication Date

1991-09-01

Copyright Information

This work is made available under the terms of a Creative Commons Attribution License, available at <https://creativecommons.org/licenses/by/4.0/>

Peer reviewed

131. Corticotropin-releasing Hormone Is a Rapid and Potent Convulsant in the Infant Rat

Tallie Z. Baram and Linda Schultz, Los Angeles, CA

Corticotropin-releasing hormone (CRH) administered into the cerebral ventricles of rats during the first and second postnatal weeks caused a specific and stereotyped behavior sequence: rhythmic chewing and licking (jaw myoclonus) were followed by "limbic"-type seizures. The onset of the seizures was much more rapid (2–45 min vs 3–7 hr) than in adult rats, and the convulsant doses were much lower (50×10^{-12} mole per gram brain weight vs 750×10^{-12} mole per gram brain weight in adults). CRH-induced seizures occurred prior to any changes in serum corticosterone, and were eliminated by the administration of a CRH antagonist, as well as of phenytoin. Electrocorticographical correlates of CRH-induced behaviors in the infant rat were inconsistent. Subcortical recording, using bipolar electrodes in the hippocampus and amygdala, localized the origin of epileptiform discharges to the amygdaloid complex. CRH is thus an *endogenous* convulsant, with age-specific rapidity and potency; CRH-induced seizures may prove a useful model for the study of age-specific seizures of infants and children.