

Title: Provocation of sudden death in animals related to metabolic abnormalities of magnesium and potassium

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Summary

To establish an animal model for sudden death, induction of sudden death and changes in ECG and EEG were studied in rats fed a magnesium deficient diet.

Twenty three weanling rats were fed a magnesium deficient diet for 2 to 3 weeks. Seizure attack was successfully induced by application of white noise (1 sec ON and 1 sec OFF) in 20 rats out of 23 fed a magnesium deficient diet. One- or 3-days-application of noise-stress was needed for induction of seizure attack such as four limbs-tonic and clonic, and rearing fall (general seizure), sometimes sudden death. ECG (II lead like configuration) and EEG from dura were recorded during and after application of white noise as an auditory stress, on 15th to 19 th day of feeding. During general seizure, various degrees of bradyarrhythmias such as sinus bradycardia, sino-atrial- or atrio-ventricular block with junctional or idioventricular escape rhythm were recorded in association with EEG abnormalities, such as low voltage fast activity and then burst spike in EEG. In 8 control rats, neither seizure and nor sudden death were induced.