

عنوان مقاله:

Modeling of brain metabolism energy for diagnosis cortical spreading depression by matlab simulink

محل انتشار:

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خلاصه مقاله:

Modeling brain Ischemia is an essential tool to understand brain energy metabolism and brain chemical reaction during ischemia. In this study, we are to construct and test a mathematical model capable of simulating changes in brain energy metabolism and develop Simulink application for modeling ischemia in different pathophysiological conditions. The model consists of metabolic parameters such as cerebral blood flow, partial oxygen pressure, mitochondrial NADH redox state, and extracellular potassium. The model is also demonstrates pathological conditions, such as complete and partial ischemia, cortical spreading depression under normoxic and partial ischemic conditions by processing collected parameters' data. This application provides computing other parameters from equations by mensuration of one or two related parameters to help experts recognize patients' conditions during clinical operations. All mathematical variables of model are only time dependent ('point-model' approach) and Simulink application based on this approach

کلمات کلیدی:

Spreading Depression; Modeling of Brain; Brain Metabolism; Modeling

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