

PERBANDINGAN LUAS INFARK OTAK PADA MODEL *MIDDLE CEREBRAL ARTERY OCCLUSION* PERMANEN DAN TRANSIEN

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ABSTRAK

Stroke iskemik merupakan penyebab utama kecacatan dan kematian global, dengan *middle cerebral artery occlusion* (MCAO) sebagai model eksperimental yang umum digunakan untuk mempelajari patofisiologi cedera otak. Penelitian ini bertujuan untuk membandingkan luas infark otak antara model MCAO permanen (pMCAO) dan transien (tMCAO), serta mengevaluasi efektivitas pMCAO dalam merepresentasikan stroke iskemik klinis. Hewan coba dibagi ke dalam kelompok pMCAO dan tMCAO, kemudian dilakukan analisis luas infark menggunakan pewarnaan *Triphenyltetrazolium Chloride* (TTC) dan analisis viabilitas neuron menggunakan *Hematoksilin-Eosin* (HE) *staining*. Hasil menunjukkan bahwa model pMCAO menghasilkan infark otak yang lebih luas dan konsisten dibandingkan tMCAO, terutama pada 24 jam pasca-oklusi. Temuan ini mendukung bahwa pMCAO lebih optimal sebagai representasi stroke iskemik tanpa reperfusi, dan dapat dijadikan acuan dalam pemilihan model hewan untuk studi eksperimental stroke.

Kata Kunci: MCAO, stroke iskemik, infark otak, TTC, HE *staining*

COMPARISON OF BRAIN INFARCT SIZE IN PERMANENT AND TRANSIENT MIDDLE CEREBRAL ARTERY OCCLUSION MODELS

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ABSTRACT

Ischemic stroke is a leading cause of disability and death worldwide, with middle cerebral artery occlusion (MCAO) serving as a widely used experimental model to study the pathophysiology of brain injury. This study aims to compare the extent of brain infarction between permanent (pMCAO) and transient (tMCAO) MCAO models, and to evaluate the effectiveness of pMCAO in representing clinical ischemic stroke. Experimental animals were divided into pMCAO and tMCAO groups, then infarct size was analyzed using Triphenyltetrazolium Chloride (TTC) and neuron viability by Hematoxylin-Eosin (HE) staining. The results showed that the pMCAO model produced larger and more consistent infarcts than the tMCAO model, particularly at 24 hours post-occlusion. These findings support the use of pMCAO as a more optimal model for representing non-reperfused ischemic stroke and provide a reference for selecting animal models in experimental stroke research.

Keywords: *MCAO, ischemic stroke, brain infarction, TTC, HE staining*