ABSTRAK

EKSPRESI PROTEIN *MATRIX METALLOPROTEINASE-9* PADA TIKUS WISTAR MODEL STROKE

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Stroke adalah salah satu penyebab utama kematian di Indonesia. Stroke iskemik merupakan kasus terbanyak dengan persentase 87% dari seluruh kejadian stroke. Ligasi arteri karotis komunis dapat menginduksi stroke iskemik karena aliran darah menuju otak terhambat sehingga menyebabkan hipoksia melanjut kerusakan jaringan. Kerusakan jaringan akan memicu pengeluaran *Matrix metalloproteinase*-9 (MMP-9) sehingga dapat dijadikan sebagai biomarker. Ekspresi MMP-9 dapat diukur menggunakan immunohistokimia. Tujuan dari penelitian ini adalah untuk mengetahui ekspresi MMP-9 pada tikus Wistar sebagai hewan model stroke iskemik yang diligasi arteri karotis komunis sinister.

Penelitian ini menggunakan 6 ekor tikus Wistar jantan berumur 2 bulan. Tikus dibagi menjadi 2 kelompok yaitu kelompok kontrol dan perlakuan. Tikus kelompok perlakuan diligasi arteri karotis komunis. Tikus perlakuan dipertahankan selama 7 hari sedangkan tikus kontrol dipertahankan selama 30 hari. Nekropsi dilakukan pada tikus. Sampel yang digunakan untuk menganalisis ekspresi MMP-9 pada pewarnaan imunohistokimia adalah *cerebellum* dan korteks serebri. Antibodi anti MMP-9 digunakan sebagai antibodi primer.

Matrix metalloproteinase-9 tikus kontrol dan perlakuan terekspresi pada sel neuron, sel glial korteks serebri dan pada sel purkinje, lapisan molekuler, dan lapisan granular *cerebellum.* Ekspresi MMP-9 tikus perlakuan mengalami peningkatan 16 kali lipat dari tikus kontrol.

Kata kunci: MMP-9, stroke iskemik, ligasi arteri karotis komunis.

ABSTRACT

THE EXPRESSION OF MATRIX METALLOPROTEINASE-9 PROTEIN IN WISTAR RAT AS A MODEL OF STROKE

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Stroke is a major cause of death in Indonesia. An Ischemic Stroke is the most cases with 87 % percentage occurred. A Stroke Ischemic induced by common carotid artery ligation since the blood flow gets interrupted and induced by hypoxia before makes damage tissue. Tissue damage will trigger MMP-9 as expulsion that can be used as a marker. Immunohistochemistry is using for measured MMP-9. The purpose of this study is to investigate MMP-9 expression in Wistar rats as animal models of ischemic stroke that were ligated in the left common carotid artery.

This research used six male Wistar rats aged 2 months. Rats were divided into 2 groups: control and treatment groups. Rats of the treatment group were ligated by a common carotid artery. Rats of the treatment group were maintained for 7 days while control rats were maintained for 30 days. Necropsies were performed on rats. The samples used to analyze Matrix metalloproteinase-9 (MMP-9) expression in immunohistochemical staining were cerebellum and cerebral cortex. Anti-MMP-9 antibodies are used as primary antibodies.

Matrix metalloproteinase-9 control and treatment rats, expressed on neuronal cells, glial cells cerebral cortex and in purkinje cells, molecular layers, and granular layer cerebellum. The expression of MMP-9 treatment rats increased 16-fold from control mice.

Keywords: MMP-9, ischemic stroke, common carotid artery ligation.