INTISARI

PENGARUH EFEK PROTEKTIF ASAM KLOROGENAT PADA GINJAL MENCIT DENGAN PERIODE KRONIS CEDERA ISKEMIK REPERFUSI GINJAL

Latar Belakang: Penyakit gagal ginjal kronik merupakan lanjutan dari kondisi cedera ginjal akut yang penyebab utamanya adalah cedera iskemik reperfusi. Dalam cedera iskemik reperfusi terjadi hambatan asupan darah yang terjadi dalam waktu tertentu dan tidak menetap. Cedera iskemik yang berkepanjangan akan memicu terjadinya gagal ginjal kronis salah satunya melalui proses EMT *(epithelial mesenchymal transition)*. Asam klorogenat diketahui memiliki efek antioksidan dan antiinflamasi, namun pengaruhnya terhadap cedera iskemik reperfusi ginjal belum banyak diketahui.

Tujuan: Penelitian ini bertujuan untuk meneliti dampak pemberian asam klorogenat terhadap cedera iskemik reperfusi ginjal yang berkepanjangan, terutama efek asam klorogenat terhadap penghambata proses EMT.

Metode: Model mencit IR dibuat dengan melakukan penjepitan pada pedikulus renalis selama 30 menit kemudian dilepas. Mencit dibagi dalam 5 kelompok (n=20): SO (kontrol), IR8 (kelompok iskemik reperfusi selama 8 hari), IR12 (kelompok iskemik reperfusi selama 12 hari), IR8CGA (diberi CGA setiap hari selama 8 hari), IR12CGA (diberi CGA setiap hari selama 12 hari). Pemeriksaan dengan metode Reverse Transcriptase PCR dilakukan untuk melihat ekspresi mRNA E-Cadherin, Snail dan Vimentin.

Hasil: Dalam penelitian ini ditemukan bahwa baik ekspresi mRNA E-Cadherin, Snail, dan Vimentin lebih tinggi pada kelompok IR hari 8 dan 12 dibanding kelompok kontrol, dan ekspresi mRNA E-Cadherin, Snail, dan Vimentin yang lebih rendah pada kelompok yang diberi asam klorogenat dibanding kelompok yang tidak diberi asam klorogenat.

Kesimpulan: cedera iskemik yang berkepanjangan dapat memicu gagal ginjal akut melalui proses EMT dan pemberian asam klorogenat dapat menghambat proses tersebut.

Kata kunci: iskemik reperfusi, asam klorogenat, EMT

ABSTRACT

THE PROTECTIVE EFFECT OF CHLOROGENIC ACID IN MICE WITH CHRONIC PERIOD OF KIDNEY ISCHEMIC REPERFUSION INJURY

Background: Chronic Kidney Disease (CKD) is an advanced progress of Acute Kidney Injury caused by ischemic reperfusion injury, a temporary blockage of blood supply followed by tissue organ reperfusion. This condition may activate epithelial mesenchymal transition (EMT) to performed kidney fibrosis. Chlorogenic acid has been known as antioxidant and antiinflamation agents, but its effect in chronic period of kidney ischemic reperfusion injury has not to be known yet.

Objective: We aim to analize the effect of chlorogenic acid in chronic period of kidney ischemic reperfusion injury, through EMT process.

Method: Male Swiss-Webster mice (n=25) were divided into 5 groups: Sham Operation (SO), Ischemic reperfusion terminated in day 8^{th} (IR8), Ischemic reperfusion terminated in day 12^{th} (IR12), Ischemic reperfusion terminated in day 8^{th} + chlorogenic acid 14mg/kgBW (IR8CGA), Ischemic reperfusion terminated in day 12^{th} + chlorogenic acid 14mg/kgBW (IR12CGA). The ischemic reperfusion injury model were performed with bilateral renal pedicles clamping for 30 minutes and then reperfuse. mRNA expression of E-Cadherin, Snail, and Vimentin was measured by RT-PCR.

Result: mRNA expression of E-Cadherin, Snail and Vimentin in IR group were significantly higher than SO group, whereas mRNA expression of E-Cadherin in IR8CGA group were sigficantly lower than IR group, and so were the mRNA expression of Vimentin. The mRNA expression of Snail in IR12CGA group were significantly lower than IR group.

Conclusion: Chronic period of ischemic reperfusion injury may cause chronic kidney disease through EMT process, and chlorogenic acid may attenuate the further damage.

Keywords: ischemic reperfusion injury, chlorogenic acid, EMT