

INTISARI

Latar Belakang: Cedera iskemik-reperfusion ginjal merupakan penyebab utama GGA yang dapat berlanjut menjadi GGK. Aktivasi dan polarisasi makrofag dari M1 menjadi M2 berperan dalam proteksi kerusakan jaringan dan fibrosis dengan melibatkan IL-10. Asam klorogenik telah diketahui memiliki efek antiinflamasi, tetapi efeknya terhadap jumlah makrofag M2 dan IL-10 pada periode kronis cedera iskemik reperfusion ginjal belum diketahui.

Tujuan: Mengetahui pengaruh pemberian asam klorogenik terhadap jumlah makrofag M2 dan IL-10 pada mencit galur swiss dengan periode kronis cedera iskemik reperfusion ginjal.

Metode: Mencit jantan galur *Swiss* (n=25, usia 2-3 bulan, berat 30-40 g) dibagi dalam 5 kelompok: kontrol (SO), iskemik reperfusion 8 hari (IR8), iskemik reperfusion 12 hari (IR12), IR 8 + asam klorogenik 14 mg/kgBB per hari (IR8 CGA), dan IR12 + asam klorogenik 14 mg/kgBB per hari (IR12 CGA). Pada hari ke-8 dan ke-12, mencit diterminasi kemudian dilakukan pengambilan sampel untuk ekstraksi RNA dan blok parafin. Jumlah makrofag M2 dihitung berdasarkan pewarnaan Imunohistokimia/IHC anti Arginase. Ekspresi Interleukin 10 diukur menggunakan RT-PCR.

Hasil: jumlah makrofag M2 pada kelompok IR8 dan IR12 lebih banyak dibanding dengan kelompok SO dan bermakna secara statistic. Jumlah makrofag pada IR8 CGA lebih banyak dibandingkan dengan IR8 dan bermakna secara statistik diikuti jumlah makrofag M2 pada IR12CGA lebih sedikit dibanding kelompok IR12 yang bermakna secara statistic. Ekspresi mRNA IL-10 lebih tinggi pada IR8 dan IR12 dibanding kelompok SO namun tidak bermakna secara statistik. Selain itu ekspresi mRNA IL-10 pada kelompok IR8 CGA lebih tinggi dibanding kelompok IR8 dan ekspresi mRNA IL-10 pada kelompok IR12 CGA lebih rendah dibanding kelompok IR12, namun tidak bermakna secara statistik.

Kesimpulan: Asam klorogenat memiliki pengaruh terhadap jumlah makrofag M2 dan tidak memiliki pengaruh terhadap ekspresi mRNA IL-10.

Kata Kunci: Asam klorogenat, iskemik-reperfusion, periode kronis, makrofag M2, IL-10.

ABSTRAK

THE EFFECT OF CHLOROGENIC ACID TO MACROPHAGE M2 COUNTS AND IL-10 mRNA IN MICE WITH CHRONIC PERIOD OF KIDNEY ISCHEMIC-REPERFUSION INJURY

Background: Kidney IRI is a major cause of AKI that may progress to CKD. Activation and polarization of macrophages from M1 to M2 plays a role in protecting tissue damage and fibrosis with IL-10 involvement. Chlorogenic acid (CGA) has been known to have anti-inflammatory effects, but its effect on the number of macrophages M2 and IL-10 mRNA expression in the chronic period of renal reperfusion ischemic injury is unknown.

Purpose: The aim of the study is to determine the effect of chlorogenic acid on the number of macrophages M2 and IL-10 mRNA expression in Swiss strain mice with chronic periods of renal reperfusion ischemic injury.

Method: Kidney IR injury was performed in Male Swiss mice (n=25, 3-4 months, 30-40 gram) using bilateral kidney pedicles clamping for 30 minutes, then reperfuse. The mice were terminated in day 8 (IR8 group) and day 12 (IR12 group). Chlorogenic acid (CGA) with dose 14 mg/Kg BW was administered for 8 days (IR8CGA group) dan 12 days (IR12 CGA group). Sham operated (SO group) mice was used for control. During sacrifice, kidneys were taken for RNA extraction and paraffin blocks making. The number of macrophages M2 was calculated based on Immunohistochemistry / IHC staining of anti-Arginase. IL-10 mRNA expression was measured using RT-PCR.

Result: The number of M2 macrophages in the IR8 and IR12 groups was significantly higher compared to the SO group. The number of macrophages in IR8 CGA was significantly higher compared to the IR8 group followed by the number of M2 macrophages in IR12 CGA less than the IR12 group which was significant. IL-10 mRNA expression was higher in IR8 and IR12 compared to SO group but not significant. In addition, IL-10 mRNA expression in the IR8 CGA group was higher than the IR8 group and IL-10 mRNA expression in the IR12 CGA group was lower than the IR12 group, but not significant.

Conclusion: Chlorogenic acid has an effect on the number of macrophages M2 and has no effect on IL-10 mRNA expression.

Keywords: Chlorogenic acid, ischemic-reperfusion, chronic period, macrophages M2, IL-10.