

INTISARI

PENGARUH PEMBERIAN ASAM KLOROGENAT TERHADAP PROGRESIVITAS GAGAL GINJAL KRONIS MODEL 5/6 SUBTOTAL NEFREKTOMI

Kajian Terhadap Cedera Tubulus, Ekspresi mRNA E-Cadherin, Snail, dan Vimentin

Latar Belakang: Gagal ginjal kronis menyebabkan gangguan ginjal progressif yang berakhir dengan penurunan fungsi ginjal dan cedera tubulus dengan peningkatan translasi mesenkimal. Asam klorogenat telah diketahui bersifat renoprotektif pada model gagal ginjal akut dan fibrosis ginjal, tetapi efeknya terhadap progresivitas gagal ginjal kronis belum diketahui.

Tujuan: Penelitian ini bertujuan untuk mengetahui pengaruh pemberian asam klorogenat terhadap skor cedera tubulus, ekspresi mRNA E-Cadherin, Snail dan Vimentin yang diinduksi 5/6 subtotal nefrektomi.

Metode: Model 5/6 subtotal nefrektomi dilakukan pada mencit jantan *Swiss-webster* dan diterminasi pada hari ke-14 (SN14, n=5) dan ke-28 (SN28, n=5) untuk mengetahui progresivitasnya. Asam klorogenat dengan dosis 14mg/kgBB diberikan mulai hari ke-1 (C28, n=5) dan hari ke-15 (C14, n=5), dan diterminasi pada hari ke-28. Kelompok SO digunakan sebagai kontrol. Kreatinin diukur dari serum darah, sedangkan skor cedera tubulus dihitung berdasarkan tampilan histopatologi dengan pewarnaan PAS. Ekspresi mRNA E-Cadherin dihitung dengan qRT-PCR, sedangkan ekspresi Snail dan Vimentin dihitung dengan RT-PCR.

Hasil Penelitian: Pada kelompok yang diberikan asam klorogenat menunjukkan hasil jumlah skor cedera tubulus lebih rendah, ekspresi mRNA E-Cadherin yang lebih tinggi dan ekspresi mRNA Snail dan Vimentin yang lebih rendah dibandingkan dengan kelompok yang tidak diberikan asam klorogenat.

Kesimpulan: Pemberian asam klorogenat dapat menurunkan jumlah skor cedera tubulus, ekspresi mRNA E-Cadherin menjadi lebih tinggi serta ekspresi mRNA Snail dan Vimentin yang lebih rendah sehingga dapat menghambat proses EMT.

Kata Kunci : Asam klorogenat, cedera tubulus, ekspresi mRNA E-Cadherin, ekspresi mRNA Snail, ekspresi mRNA Vimentin.

ABSTRACT

EFFECT OF CHLOROGENIC ACID ADMINISTRATION ON PROGRESSIVITY OF CHRONIC KIDNEY DISEASE 5/6 SUBTOTAL NEPHRECTOMY MODEL A Study on Tubular Injury, mRNA Expression of E-Cadherin, Snail, and Vimentin.

Background: Chronic kidney disease causes progressive renal impairment which ends with decreased kidney function and tubular injury with increased mesenchymal translation. Chlorogenic acid has been known to be renoprotective in models of acute renal failure and renal fibrosis, but its effect on the progression of chronic kidney disease is unknown.

Objective: This study aimed to determine the effect of chlorogenic acid administration on tubular injury scores, E-Cadherin, Snail, and Vimentin mRNA expression induced by 5/6 subtotal nephrectomy.

Method: Model 5/6 subtotal nephrectomy was performed on male Swiss-Webster and terminated on days 14 (SN14, n=5) and 28 (SN28, n=5) to determine the progression. Chlorogenic acid at a dose of 14mg/kg BW was administered starting on day 1 (C28, n=5) and day 15 (C14, n=5), and terminated on day 28. The SO group was used as a control. Creatinine was measured from blood serum, while the tubular injury score was calculated based on histopathological appearance with PAS staining. E-cadherin mRNA expression was calculated by qRT-PCR, while the expression of Snail and Vimentin was calculated by RT-PCR.

Result: The group that was given chlorogenic acid showed lower tubular injury score, higher E-cadherin mRNA expression, and lower Snail and Vimentin mRNA expression compared to the group not given chlorogenic acid.

Conclusion: Administration of chlorogenic acid can reduce the number of tubular injury scores, higher E-cadherin mRNA expression, and lower Snail and Vimentin mRNA expression so that it can inhibit the EMT process.

Keywords: Chlorogenic acid, tubular injury, E-cadherin mRNA expression, Snail mRNA expression, Vimentin mRNA expression.