Efek irbesartan terhadap kadar malondialdehid jantung dan serum tikus model penyakit ginjal kronis = The effect of irbesartan on the levels of cardiac and serum malondialdehyde on rat models of chronic kidney disease

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Abstrak

Penyakit Ginjal Kronis (PGK) merupakan kondisi dengan penurunan laju filtrasi glomerulus (LFG). Penurunan LFG mengaktivasi Sistem-Renin-Angiotensin-Aldosteron (RAAS) dan menyebabkan penumpukan toksin uremik yang meningkatkan stres oksidatif. Irbesartan adalah obat yang berperan dalam inhibisi RAAS dan diduga memiliki peranan dalam menurunkan stres oksidatif.
Tujuan: Mengetahui efek antioksidan Irbesartan dan pengaruhnya terhadap stres oksidatif jantung dan serum tikus model PGK metode 5/6 nefrektomi melalui pengukuran kadar malondialdehid.
Metode: Penelitian ini merupakan penelitian eksperimental menggunakan jaringan jantung dan serum tikus tersimpan. Sampel terdiri atas 3 kelompok, yaitu sham (S, jantung dan serum: n=4), nefrektomi 5/6 (N, jantung: n=4; serum: n=3) dan nefrektomi 5/6 dengan pemberian Irbesartan 20 mg/kgBB/hari selama 4 minggu (N+I, jantung dan serum: n=4). Kemudian dilakukan pengukuran kadar malondialdehid melalui uji Thiobarbituric Acid Reactive Substance Assay (TBARS) pada jaringan tersimpan. Analisis statistik dilakukan dengan SPSS v25.0 menggunakan uji One-Way ANOVA.
Hasil: Tidak terdapat perbedaan bermakna secara statistik (p>0,05) antara ketiga kelompok pada pemeriksaan kadar malondialdehid jantung dan serum tikus (jantung: p=0,060; serum: p=0,162).
Kesimpulan: Tidak terdapat perbedaan bermakna pada kadar malondialdehid jantung dan serum tikus model PGK metode 5/6 nefrektomi dengan dan tanpa pemberian Irbesartan.
.....Background: Chronic kidney disease (CKD) is a condition that triggers a decrease in glomerular filtration rate. The reduction can activate Renin-Angiotensin-Aldosterone System (RAAS) and leads to an accumulation of oxidative stress. Irbesartan is a drug that functions to inhibit RAAS and is thought to have an effect on lowering the oxidative stress.
Objectives: To understand irbesartan’s antioxidant effects and its impact on oxidative stress in cardiac tissues and serum on rat models of 5/6 nephrectomy-induced CKD through the measurement of malondialdehyde levels.
Methods: This study is an experimental study utilizing stored heart and serum. The samples consists of three groups, which are Sham (S, heart and serum: n=4), 5/6 nephrectomy (N, heart: n=4; serum: n=3), and 5/6 nephrectomy administered with Irbesartan 20 mg/kgW/day for 4 weeks (N+I, heart and serum: n=4). Statistical analyses were done using SPSS v25.0 and examined using One-Way ANOVA.
Results: There were no significant results between the three groups based on the levels of heart and serum malondialdehyde (heart: p=0.060; serum: p=0.162).
Conclusion: There were no significant differences in the levels of heart and serum malondialdehyde on rat models of 5/6 nephrectomy-induced CKD with the administration of Irbesartan compared and without the administration of Irbesartan.