

Tesis

PERBEDAAN KADAR *N-TERMINAL PRO B-TYPE NATRIURETIC PEPTIDE* SERUM PASIEN GAGAL GINJAL YANG MENJALANI HEMODIALISIS BERDASARKAN KEJADIAN DIABETES MELITUS TIPE 2



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ABSTRAK

Latar Belakang: Gagal jantung kongestif merupakan kondisi yang umum terjadi pada pasien dialisis dan menandakan prognosis yang buruk. Diabetes melitus merupakan penyebab utama penyakit ginjal stadium akhir. Hiperglikemia dan resistensi insulin menginduksi disfungsi endotel yang menyebabkan gangguan jantung dan ginjal simultan. *N-terminal pro b-type natriuretic peptide* (NT-proBNP) mempunyai efek diuretik, natriuretik, relaksasi otot polos vaskular, menghambat aktivitas neurohormonal dan mengurangi fibrosis kardiovaskular. Konsentrasinya meningkat bila terjadi regangan dinding jantung, dilatasi ventrikel dan peningkatan tekanan jantung. Penelitian ini bertujuan mengetahui perbedaan kadar NT-proBNP serum pasien gagal ginjal yang menjalani hemodialisis berdasarkan kejadian diabetes melitus tipe 2 (DMT2).

Metode: Penelitian analitik dengan rancangan potong lintang dilakukan terhadap 52 pasien yang telah didiagnosis sebagai gagal ginjal diabetik dan non-diabetik oleh klinisi dan menjalani hemodialisis rutin di RSUP Dr. M. Djamil Padang mulai November 2020 hingga Agustus 2021. Pemeriksaan NT-proBNP menggunakan metode ELISA di Laboratorium Biomedik Fakultas Kedokteran Universitas Andalas. Nilai rujukan normal kadar NT-proBNP adalah <400 ng/L (<0,4 ng/mL). Data dianalisis dengan uji parametrik T tidak berpasangan, bermakna jika $p < 0,05$.

Hasil: Rerata umur subjek penelitian kelompok DMT2 57 tahun dan non-DMT2 50 tahun. Subjek penelitian kelompok DMT2 terbanyak perempuan 41% dan non-DMT2 laki-laki 74%. Rerata kadar NT-proBNP kelompok DMT2 didapatkan 13,23 (3,08) ng/mL. Rerata kadar NT-proBNP kelompok non-DMT2 adalah 13,30 (6,13) ng/mL. Uji statistik menunjukkan tidak ditemukan perbedaan kadar yang bermakna antara 2 kelompok ($p = 0,954$).

Simpulan: Tidak didapatkan perbedaan kadar NT-proBNP pasien gagal ginjal yang menjalani hemodialisis berdasarkan kejadian diabetes melitus tipe 2.

Kata Kunci: NT-proBNP, gagal ginjal, hemodialisis, diabetes melitus tipe 2.

**SERUM LEVELS OF N-TERMINAL PRO B-TYPE NATRIURETIC
PEPTIDE: DIFFERENCES BETWEEN TYPE 2 DIABETES
MELLITUS AND NON-DIABETIC RENAL FAILURE ON
HEMODIALYSIS PATIENTS**

ABSTRACT

Background: Congestive heart failure is a common condition in dialysis patients and indicates a poor prognosis. Diabetes mellitus is the leading cause of end-stage renal disease. Hyperglycemia and insulin resistance induce endothelial dysfunction leading to simultaneous cardiac and renal impairment. N-terminal pro b-type natriuretic peptide (NT-proBNP) has diuretic and natriuretic effects. It can also relax vascular smooth muscle, inhibit neurohormonal activity, and reduce cardiovascular fibrosis. Its concentration increases when there is a stretch of the heart wall, ventricular dilatation and an increase in cardiac pressure. This study aims to determine the differences in serum NT-proBNP levels in renal failure patients undergoing hemodialysis based on incidence of type 2 diabetes mellitus (T2DM).

Methods: This study was an analytical study with cross-sectional design conducted on 52 patients who had been diagnosed with diabetic and non-diabetic renal failure by clinicians and underwent routine hemodialysis at Dr. M. Djamil hospital Padang from November 2020 to August 2021. Levels of NT-proBNP were measured using ELISA method at Biomedical Laboratory Faculty of Medicine, Andalas University. Normal reference value for NT-proBNP level is <400 ng/L (<0.4 ng/mL). Data were analyzed using unpaired parametric T test, significant if $p < 0.05$.

Results: Mean age in T2DM group was 57 years old and in non-T2DM group was 50 years old. Most of subjects T2DM group were women (41%) and in non-T2DM group were men 74%. Mean level of NT-proBNP in T2DM group was 13.23 (3.08) ng/mL and in non-T2DM group was 13.30 (6.13) ng/mL. Statistical test showed no significant difference in NT-proBNP levels between the two groups ($p = 0.954$).

Conclusion: There was no difference in NT-proBNP levels in renal failure patients undergoing hemodialysis based on incidence of type 2 diabetes mellitus

Keywords: NT-proBNP, renal failure, hemodialysis, type 2 diabetes mellitus