

ABSTRAK

Hubungan Antara Kadar *Small Dense Low-Density Lipoprotein*, Rasio *Low-Density Lipoprotein / High-Density Lipoprotein* Dengan Kekakuan Arteri Pada Pasien Diabetes Mellitus Tipe 2

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Latar Belakang: Diabetes Mellitus (DM) berhubungan dengan peningkatan kejadian Penyakit Kardiovaskular (PKV). *Small dense Low-Density Lipoprotein* (sdLDL) dan rasio *Low-Density Lipoprotein* (LDL)/ *High-Density Lipoprotein* (HDL) sering dihubungkan dengan kekakuan arteri. Mekanisme yang potensial seperti: aterosklerosis, perubahan serat elastis dinding arteri, disfungsi endotel dan inflamasi dapat menjelaskan hubungan antara sdLDL, rasio LDL/HDL dan kekakuan arteri.

Tujuan: Penelitian ini dirancang untuk menganalisis hubungan antara sdLDL, rasio LDL/HDL dan kekakuan arteri pada pasien DM Tipe 2 (DMT2).

Material dan Metode: Kami melakukan pendekatan *cross sectional* dari rekam medis pasien DMT2 di poliklinik rawat jalan RSUD dr. Soetomo, Surabaya. Sebanyak 32 pasien DMT2 dengan rentang usia antara 45 sampai 75 tahun dengan rekam medis yang lengkap memenuhi kriteria inklusi. Data klinis, laboratorium dan baPWV (*Brachial-ankle Pulse Wave Velocity*) diperoleh dari rekam medis yang ada. Untuk mengukur kekakuan arteri. Hasil akan dianalisis dengan uji *Pearson*.

Hasil : Dari 32 subjek penelitian dengan DMT2, didapatkan 18 (56,3%) subjek adalah laki-laki dan 14 (43,8%) subjek adalah perempuan dengan rerata usia $58,63 \pm 7,893$ tahun. Rerata kadar sdLDL serum $40,58 \pm 10,605$ mg/dL, rerata rasio LDL/HDL $3,45 \pm 1,03$, sedangkan rerata baPWV $15,88 \pm 1,88$ m/detik. Hasil uji korelasi *Pearson* antara kadar sdLDL dengan baPWV menunjukkan korelasi positif lemah ($r=0,397$; $p=0,025$), sedangkan antara rasio LDL/HDL dengan baPWV menunjukkan korelasi positif sedang ($r=0,468$; $p=0,007$).

Kesimpulan: Didapatkan hubungan yang bermakna antara kadar sdLDL, rasio LDL/HDL dengan kekakuan arteri yang diukur dengan baPWV pada pasien DMT2.

Kata Kunci : *sdLDL, Rasio LDL/HDL, kekakuan arteri, DM tipe 2.*

ABSTRACT

Correlation of Small Dense Low-Density Lipoprotein Level, Low-Density Lipoprotein / High-Density Lipoprotein Ratio with Arterial Stiffness in Type 2 Diabetes Mellitus Patients

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Background: Small Dense Low-Density Lipoprotein (sdLDL) and Low-Density Lipoprotein (LDL)/ High-Density Lipoprotein (HDL) ratio are associated with the arterial stiffness. The potential mechanism linking cholesterol and arterial stiffness including atherosclerosis, changes in the elastic element of the arterial wall, endothelial dysfunction and inflammation could explain.

Aim: This study was designed to identify the correlation between sdLDL, LDL/HDL ratio with arterial stiffness in type 2 Diabetes Mellitus (DM) patients.

Method: We conducted a cross-sectional approach from the medical record of type 2 DM patients at the outpatient clinic Dr. Soetomo Hospital, Surabaya. A total of 32 patients type 2 DM with their age ranged between 45 to 75 years with complete medical records were included. Clinical, laboratory and (brachial-ankle Pulse Wave Velocity (baPWV) data were obtained from the availability of medical records.

Result: A total 32 patients with type 2 DM, 18 (56,3.1%) were man, 14 (43,8%) were woman, with the mean age $58,63 \pm 7,893$ years. The mean of sdLDL levels was $40,58 \pm 10,605$ mg/dL, the mean of LDL/HDL ratio was $3,45 \pm 1,03$, while the mean of baPWV was $15,88 \pm 1,88$ m/second. The results of the Pearson correlation test revealed a weak positive association between sdLDL level and baPWV ($r=0,397$; $p=0,025$), while between LDL/HDL ratio and baPWV revealed a weak positive association ($r=0,468$; $p=0,007$).

Conclusion: A significant correlation was obtained between sdLDL levels, LDL/HDL ratio with arterial measured by baPWV in type 2 DM patients.

Keywords: sdLDL. LDL/HDL ratio, arterial stiffness, type 2 DM.