

Perbedaan kadar asymmetrical dimethylarginine dan endotelin-1 pada pasien penyakit jantung koroner stabil dengan dan tanpa diabetes melitus tipe 2. = The Difference of asymmetrical dimethylarginine and endotelin 1 level in stable coronary artery disease with and without type 2 diabetes mellitus

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Abstrak

Latar Belakang: Sebesar 90% penderita DM merupakan DMT2. Komplikasi makrovaskular pada DM merupakan komplikasi ke tiga terbanyak setelah retinopati dan neuropati. Kematian pada DMT2 tujuh puluh lima persen disebabkan oleh PJK. Hal yang mendasari kejadian PJK adalah aterosklerosis yang didahului oleh proses disfungsi endotel. Disfungsi endotel ditandai oleh adanya peningkatan endotelin-1 (ET-1) dan penurunan NO akibat peningkatan inhibitor eNOS, asymmetrical dimethylarginine (ADMA).

Tujuan: Mengetahui perbedaan kadar ADMA dan ET-1 dengan keparahan Penyakit Jantung Koroner (PJK) stabil dengan dan tanpa DMT2.

Metode: Penelitian potong lintang, analitik pada pasien PJK stabil dengan dan tanpa DMT2 yang akan menjalani angiografi koroner pertama kali. Dilakukan pemeriksaan ADMA, ET-1, HbA1c dan evaluasi lesi koroner dengan sistim skoring berdasarkan syntax score (SS). Analisis untuk melihat 2 perbedaan median dilakukan dengan uji Mann Whitney dan perbedaan median lebih dari 2 kelompok dengan uji Kruskal Wallis pada distribusi data yang tidak normal.

Hasil: Dari 28 orang pasien PJK stabil dengan DMT2 dan 30 pasien PJK stabil tanpa DMT2 didapatkan proporsi usia hampir sama, wanita lebih banyak pada kelompok DMT2. Kadar ADMA dan ET-1 pada DMT2 lebih tinggi dibanding tanpa DM (p 0,6; 2,1 dan p 0,3). Kadar ADMA dan ET-1 pada DMT2 dan HbA1c 7% lebih rendah dari HbA1c < 7% (p 0,7 dan p 0,8). Kadar ADMA pada DMT2 dan SS tinggi lebih rendah dibanding SS rendah (p 0,7), sedangkan kadar ET-1 pada DMT2 dan SS tinggi, lebih tinggi dibanding SS rendah (p 0,9). Kadar ADMA dan ET-1 pada DMT2 dengan SS rendah dan HbA1c 7% lebih rendah dibanding HbA1c < 7% (p 0,5 dan p 0,5).

Simpulan: Tidak terdapat perbedaan bermakna kadar ADMA dan ET-1 pada pasien PJK stabil dengan dan tanpa DMT2. Tidak terdapat perbedaan bermakna kadar ADMA dan ET-1 dengan kontrol glukosa darah pada kelompok syntax score rendah.

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Background: Ninety percent of diabetes patients have type 2 diabetes mellitus (T2DM). Macrovascular complication was the third highest complication in diabetes after retinopathy and neuropathy. Coronary artery disease (CAD) resulting from diabetes is responsible for 75% of diabetes-related death. Underlying mechanism of CAD is atherosclerosis initiated by endothelial dysfunction. The endothelial dysfunction is marked by endothelin-1 (ET-1) levels raise and NO decrement, as a result of eNOS inhibition by increased asymmetrical dimethylarginine (ADMA).

Objective: To determine the difference of asymmetrical dimethylarginine (ADMA) and endotelin-1 (ET-1) levels to evaluate the severity and complexity of coronary lesion in stable coronary artery disease (SCAD) with and without T2DM.

Methods: This is an analytical cross-sectional study. We obtained serum sample and measured ADMA, ET-1, HbA1c levels and evaluated coronary lesion by syntax score (SS). Analysis of the ADMA and ET-1 correlation was evaluated by blood glucose control and SS. Mann-Whitney U test was used to compare two independent mean, Kruskal-Wallis test was used for differences among the groups median if variables were not normally distributed.

Results: We enrolled 28 stable CAD patients with T2DM and 30 stable CAD patients without T2DM. Baseline coroner angiography results with age proportion were similar in both groups. Women were predominant in T2DM group. ADMA and ET-1 levels in T2DM were higher than in without T2DM (58,0 and 50,5 with p 0,6 ; 2,1 and 1,8 with p 0,3). ADMA dan ET-1 levels in T2DM with HbA1c $\geq 7\%$ were lower than in T2DM with HbA1c $< 7\%$ (51,7 and 65,3 with p 0,7 ; 2,08 and 2,14 with p 0,8). ADMA level in T2DM with high SS was lower than ones with low SS (44,5 and 58,4 with p 0,7), ET-1 level in T2DM with high SS was higher than in T2DM with low SS (2,72 and 2,08 with p 0,9). ADMA and ET-1 levels in T2DM with low SS and HbA1c $\geq 7\%$ were lower than HbA1c $< 7\%$ (47,8 and 72,0 with p 0,5 ; 2,06 and 2,14 with p 0,5).

Conclusions: ADMA and ET-1 levels in patient SCAD with and without T2DM are insignificantly related. There is no significant difference of ADMA and ET-1 levels with blood glucose control and low syntax score.