Hubungan kadar serum ST2 dengan fibrosis dini miokard pada penderita disglikemia = Association between serum ST2 levels and early myocardial fibrosis in disglycemic patients

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Abstrak

ABSTRAK
 Latar belakang: disglikemia adalah keadaan intoleransi glukosa berupa peningkatan kadar gula darah yang berhubungan dengan risiko penyakit kardiovaskular. Seiring dengan waktu, pada akhirnya diabetes akan menimbulkan kerusakan pada target organ, salah satu yang penting adalah pada sistem organ kardiovaskular, dapat berupa penyakit jantung koroner, kardiomiopati diabetes, penyakit serebrovaskuler, dan penyakit arteri perifer. Diabetes juga meningkatkan risiko terjadinya gagal jantung. Pada kardiomiopati diabetes, proses fibrosis yang masih reversibel sudah mulai terjadi bahkan ketika penderita masih asimtomatik. Pemeriksaan baku emas untuk mendeteksi terjadinya fibrosis miokard secara dini adalah pemeriksaan histopatologi jaringan miokardium melalui biopsi. Akan tetapi pemeriksaan ini sangat invasif dan tidak nyaman bagi subjek. Pemeriksaan yang kemudian berkembang adalah pencitraan menggunakan Cardiac Magnetic Resonance Imaging (CMRI). Akan tetapi pemeriksaan ini cukup mahal, dan tidak tersedia pada semua fasilitas kesehatan. Sementara itu, ST2 adalah penanda enzim jantung yang menggambarkan derajat proses fibrosis yang sedang terjadi pada miokard, terutama pada keadaan gagal jantung. Pemeriksaan menggunakan penanda enzim dapat menjadi alternatif dengan keuntungan lebih murah, dapat terjangkau luas dan mudah tersedia. Tujuan: Mengetahui hubungan antara kadar ST2 serum dengan fibrosis miokard interstisial pada penderita disglikemia. Metode: Pasien disglikemia yang lolos kriteria eksklusi berupa komorbid kardiovaskular akan menjalani pemeriksaan kadar ST2 serum dan T1 relaxation time menggunakan Cardiac MRI. Selanjutnya dilakukan analisis hubungan antara kadar ST2 serum dan T1 relaxation time. Hasil penelitian: Sebanyak 34 pasien diikutsertakan ke dalam penelitian ini. Didapatkan kisaran nilai kadar ST2 serum antara 12.40-53.22 ng/dL (median 19.95 ng/dL). Rerata nilai T1 relaxation time didapatkan sebesar 443.39 ± 113.35 ms. Terdapat korelasi bermakna antara kadar ST2 serum dengan fibrosis diffuse miokardium (Spearman correlation r = -0,547, p < 0.01). Pada analisa multivariat hubungan antara kadar ST2 serum dan T1 relaxation time tidak dipengaruhi oleh faktor perancu yang telah ditetapkan (r = -0,44, p = 0,033). Kesimpulan: Hasil penelitian ini menunjukkan kadar ST2 serum berkolerasi dengan fibrosis diffuse miokardium pada populasi disglikemia.ABSTRACT
 Background: disglycemia is a state of glucose intolerance include increased blood sugar levels associated with risk of cardiovascular disease. Over time, eventually diabetes will cause damage to the target organ, especially the cardiovascular system, which include coronary heart disease, diabetic cardiomyopathy, diabetes, cerebrovascular disease, and peripheral arterial disease. Diabetes also increases the risk of heart failure. The clinical appearance of the disease is wide ranging from asymptomatic to symptomatic heart failure. Gold standard examination to detect the occurrence of early myocardial fibrosis is histopathological examination of myocardial tissue via biopsy. However, these tests are very invasive and uncomfortable for the subject. Examination which later evolved is imaging using cardiac magnetic resonance imaging (CMRI). However, these tests are quite expensive, and not available at all health facilities. Meanwhile, ST2 is a cardiac enzyme marker that describes the degree of fibrosis process in the myocardium, especially in the

state of heart failure. Examination using enzyme markers can be a cheaper alternative, widely accessible and readily available. Aim: Knowing the relationship between serum levels of ST2 with myocardial interstitial fibrosis in disglycemic patients. Methods: Disglycemic patients who passed from the exclusion criteria (cardiovascular comorbid), will undergo a serum ST2 levels and T1 relaxation time using cardiac MRI. Then we analyzed the relationship between serum levels of ST2 and T1 relaxation time. Results: A total of 34 patients were included in this study. The range values of serum ST2 levels were between 12.40-53.22 ng/dL (median 19.95 ng/dL). The mean value of T1 relaxation time were 443.39 ± 113.35 ms. There is a significant correlation between serum levels of ST2 with diffuse myocardial fibrosis (Spearman correlation r = -0.547, p <0:01). Multivariate analysis showed the relationship between serum levels of ST2 and T1 relaxation time is not influenced by confounding factors (r = -0.44, p = 0.033). Conclusion: ST2 serum levels correlates with diffuse myocardial fibrosis on disglycemic population.;Background: disglycemia is a state of glucose intolerance include increased blood sugar levels associated with risk of cardiovascular disease. Over time, eventually diabetes will cause damage to the target organ, especially the cardiovascular system, which include coronary heart disease, diabetic cardiomyopathy, diabetes, cerebrovascular disease, and peripheral arterial disease. Diabetes also increases the risk of heart failure. The clinical appearance of the disease is wide ranging from asymptomatic to symptomatic heart failure. Gold standard examination to detect the occurrence of early myocardial fibrosis is histopathological examination of myocardial tissue via biopsy. However, these tests are very invasive and uncomfortable for the subject. Examination which later evolved is imaging using cardiac magnetic resonance imaging (CMRI). However, these tests are quite expensive, and not available at all health facilities. Meanwhile, ST2 is a cardiac enzyme marker that describes the degree of fibrosis process in the myocardium, especially in the state of heart failure. Examination using enzyme markers can be a cheaper alternative, widely accessible and readily available. Aim: Knowing the relationship between serum levels of ST2 with myocardial interstitial fibrosis in disglycemic patients. Methods: Disglycemic patients who passed from the exclusion criteria (cardiovascular comorbid), will undergo a serum ST2 levels and T1 relaxation time using cardiac MRI. Then we analyzed the relationship between serum levels of ST2 and T1 relaxation time. Results: A total of 34 patients were included in this study. The range values of serum ST2 levels were between 12.40-53.22 ng/dL (median 19.95 ng/dL). The mean value of T1 relaxation time were 443.39 ± 113.35 ms. There is a significant correlation between serum levels of ST2 with diffuse myocardial fibrosis (Spearman correlation r = -0.547, p <0:01). Multivariate analysis showed the relationship between serum levels of ST2 and T1 relaxation time is not influenced by confounding factors (r = -0.44, p = 0.033). Conclusion: ST2 serum levels correlates with diffuse myocardial fibrosis on disglycemic population.;Background: disglycemia is a state of glucose intolerance include increased blood sugar levels associated with risk of cardiovascular disease. Over time, eventually diabetes will cause damage to the target organ, especially the cardiovascular system, which include coronary heart disease, diabetic cardiomyopathy, diabetes, cerebrovascular disease, and peripheral arterial disease. Diabetes also increases the risk of heart failure. The clinical appearance of the disease is wide ranging from asymptomatic to symptomatic heart failure. Gold standard examination to detect the occurrence of early myocardial fibrosis is histopathological examination of myocardial tissue via biopsy. However, these tests are very invasive and uncomfortable for the subject. Examination which later evolved is imaging using cardiac magnetic resonance imaging (CMRI). However, these tests are quite expensive, and not available at all health facilities. Meanwhile, ST2 is a cardiac enzyme marker that describes the degree of fibrosis process in the myocardium, especially in the state of heart failure. Examination using enzyme

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