

INTISARI

HUBUNGAN NILAI STRAIN ATRIUM KIRI DENGAN FIBRILASI ATRIUM PADA PASIEN STROKE ISKEMIK AKUT

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Latar Belakang

Stroke iskemik akut akibat kardioemboli yang berkaitan dengan irama fibrilasi atrium (FA) memiliki risiko terbesar untuk kambuh dan meningkatkan morbiditas serta mortalitas pasien. Namun, angka deteksi irama FA pada pasien stroke iskemik akut menggunakan modalitas elektrokardiogram dan pemantauan holter masih cukup rendah. Perubahan fungsional pada atrium kiri telah dikaitkan dengan munculnya irama FA. Pengukuran *strain* atrium kiri menggunakan *speckle tracking echocardiography* 2D (STE-2D) dapat mendeteksi gangguan fungsi atrium kiri yang berkaitan dengan FA.

Tujuan Penelitian

Mengetahui hubungan nilai *strain* atrium kiri dan fibrilasi atrium pada pasien dengan stroke iskemik akut

Metode Penelitian

Studi observasi analitik ini dilakukan secara potong lintang menggunakan data sekunder catatan medis di RSUP Dr. Sardjito sejak periode Januari 2020–Desember 2022, pada populasi pasien stroke iskemik akut yang dilakukan pemeriksaan elektrokardiogram dan ekokardiografi transtorakal

Hasil

Selama periode observasi, sebanyak 142 pasien stroke iskemik akut dilakukan pemeriksaan elektrokardiogram dan ekokardiografi transtorakal. Sebanyak 72 pasien terdiagnosis stroke iskemik akut yang memenuhi kriteria inklusi sebagai subjek penelitian, terdapat 49 subjek (68%) dengan irama sinus dan 23 subjek (32%) dengan irama FA. Nilai *strain* atrium kiri didapatkan lebih rendah pada kelompok irama FA ($13,02 \pm 8,49$) dibandingkan kelompok irama sinus ($25,12 \pm 8,36$) dan secara statistik berbeda signifikan ($p < 0,001$). Penentuan nilai titik potong optimal menggunakan Indeks Youden didapatkan nilai *strain* atrium kiri $< 16,25$ memiliki nilai sensitivitas 85,7% dan spesifisitas 73,9% dengan nilai *area under the curve* (AUC) sebesar 84% ($p < 0,001$, IK95% 0,74 – 0,95). Hasil uji analisis multivariat didapatkan bahwa *strain* atrium kiri merupakan prediktor independen yang berhubungan dengan irama FA ($p = 0,001$, OR 18,68; IK95% 3,22 – 108,45).

Simpulan

Nilai *strain* atrium kiri berhubungan dengan irama fibrilasi atrium pada pasien stroke iskemik akut. Pasien stroke iskemik akut dengan nilai *strain* atrium kiri $< 16,25$ memiliki prevalensi irama fibrilasi atrium lebih besar.

Kata kunci: strain atrium kiri, fibrilasi atrium, stroke iskemik, speckle tracking echocardiography

ABSTRACT

ASSOCIATION OF LEFT ATRIAL STRAIN WITH ATRIAL FIBRILLATION IN ACUTE ISCHEMIC STROKE PATIENTS

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Background

Acute ischemic stroke due to cardio-embolism associated with atrial fibrillation (AF) has been known to have the highest risk of recurrence and increased patient morbidity and mortality. However, the detection rate of AF rhythm in acute ischemic stroke patients using electrocardiograms and Holter monitoring was still quite low. Functional changes in the left atrium have been associated with an increased incidence of AF. Left atrial strain measurement using speckle tracking echocardiography 2D (STE-2D) can measure left atrial dysfunction associated with AF.

Research Objective

To determine the association between left atrial strain and atrial fibrillation in patients with acute ischemic stroke.

Research Methods

This analytical observation study was conducted with a cross-sectional design, using secondary data from medical records at RSUP Dr. Sardjito within January 2020–December 2022 on the population of acute ischemic stroke patients who underwent an electrocardiogram and transthoracic echocardiography examination.

Results

During the observation period 142 acute ischemic stroke patients underwent an electrocardiogram and transthoracic echocardiography examinations. A total of 72 patients diagnosed with acute ischemic stroke met the inclusion criteria as study subjects, there were 49 subjects (68%) with sinus rhythm and 23 subjects (32%) with AF rhythm. The left atrial strain value was found to be lower in the AF rhythm group ($13,02 \pm 8,49$) than in the sinus rhythm group ($25,12 \pm 8,36$) and was statistically significant ($p < 0,001$). Determination of the optimal cut-off value using the Youden Index obtained a left atrial strain value $< 16,25$ with a sensitivity of 85,7%, specificity of 73,9%, and area under the curve (AUC) value of 84% ($p < 0,001$, 95% CI 0,74 – 0,95). The results of the multivariate analysis test showed that left atrial strain was an independent predictor related to the occurrence of AF rhythm ($p = 0,001$, OR 18,68; 95% CI 3,22 – 108,45).

Conclusion

Decreased left atrial strain is associated with atrial fibrillation rhythms in acute ischemic stroke patients. Acute ischemic stroke patients with a left atrial strain value < 16.25 have a higher prevalence of atrial fibrillation rhythm.

Keywords: left atrial strain, atrial fibrillation, ischemic stroke, speckle tracking echocardiography