Evaluation Of Epicardial Fat Thickness in Young Patients with Cryptogenic Stroke

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Aim

Epicardial adipose tissue (EAT) is metabolically active and an important predictor of metabolic and cardiovascular diseases. The aim of this study was to investigate the epicardial adipose tissue measurement with echocardiography in young patients with cryptogenic stroke (CS).

Materials&Method

We studied 77 volunteers: 40 patients with CS (mean age 43±8 years,16 females) and other 37 healthy subjects (mean age 38±7 years, 20 females). All basic biochemical parameters were analyzed and echocardiographic epicardial fat thickness (EFT) were measured in all subjects. All imaging and examinations were done in terms of etiology in the patients. The categorical and numerical variables were compared using the chi-square test and independent t-test, respectively. Correlations were analyzed using the Spearman and Pearson correlation tests. ROC curve analysis was performed to determine cutoff high risk value of EFT.

Results

In comparison with the control group, the patients with CS had significantly higher EFT (5.51±0.82, 3.96±0.51, p<0.01). Furthermore, there were positive correlations between EFT and C-reaktive protein (r=0.284; p<0.05). A cutoff high risk EFT value of 4.6 mm showed a sensitivity and specificity of 87.5% and 81.1%, respectively.

Table 2: The echocardiographic characteristics of the groups

	Controls (n=37)	ESUS (n=40)	p value
LVEF (%)	65±3	63±13	0.690
E (cm/s)	79±14	64±14	0.419
A (cm/s)	66±13	64±14	0.582
DT (ms)	172±36	192±47	0.141
E/A ratio	1.24±0.30	1.04±0.33	0.214
LV-MPI	0.50±0.07	0.59±0.09	0.129
e' (cm/s)	14.8±2.6	10.5±3.5	0.040
a' (cm/s)	10±3.3	8.8±2.3	0.032
e'/a' ratio	1.65±0.63	1.28±0.64	0.726
E/e' ratio	5.5±1.9	1.28±0.64	0.023
EFT (mm)	3.96±0.51	5.51±0.82	0.010

Values are presented as mean ±SD, ESUS:Embolic Stroke of Undetermined Source; LVEF: Left ventricular ejection fraction; E:Peak early filling velocity; A:Late diastolic filling velocity; DT:E wave deceleration time, LV-MPI:Left ventricular myocardial performance index; e': early diastolic mitral annular velocity; a': late diastolic mitral annular velocity; EFT:Epicardial Fat Thickness

Conclusion

We found that echocardiographic EFT was significantly higher in young patients with CS. Increased EFT might be a novel risk factor in these patients.

Table 1: Demographic and biochemical parameters of the study population

	Controls (n=37)	ESUS (n=40)	P value
Age (year)	38±7	43±8	0.072
Sex (male/female)	17/20	24/16	0.217
BMI (kg/m²)	25.8±3.1	26.2±3.4	0.443
Smoking	13/24	28/12	0.002
SBP (mmHg)	113±9	121±11	0.281
DBP (mmHg)	72±5	75±7	0.140
Cholesterol (mg/dL)	192±33	193±48	0.168
Triglycerides(mg/dL)	123±53	156±80	0.323
HDL (mg/dL)	49±10	43±13	0.705
LDL (mg/dL)	115±31	117±44	0.480
Creatinine (mg/dL)	0.72±0.12	0.79±0.18	0.052
Hemoglobin (g/dL)	13.5±1.7	13.8±1.9	0.561
Glucose (mg/dL)	88±8	93±13	0.064
Fibrinogen(mg/dL)	270±37	315±61	0.054
C-reactive protein(mg/dL)	3.2±1.1	4.2±2.4	0.002

*Values are presented as mean ±SD. ESUS:Embolic Stroke of Undetermined Source_ *BMI:Body Mass Index; SBP:Systolic Blood Pressure; DBP:Diastolic Blood Pressure; HDL:High Density Lipoprotein; LDL:Low Density Lipoprotein*