



ASSOCIATION BETWEEN LEFT VENTRICULAR REMODELING AND LEFT ATRIAL APPENDAGE THROMBUS IN PATIENTS WITH ATRIAL FIBRILLATION



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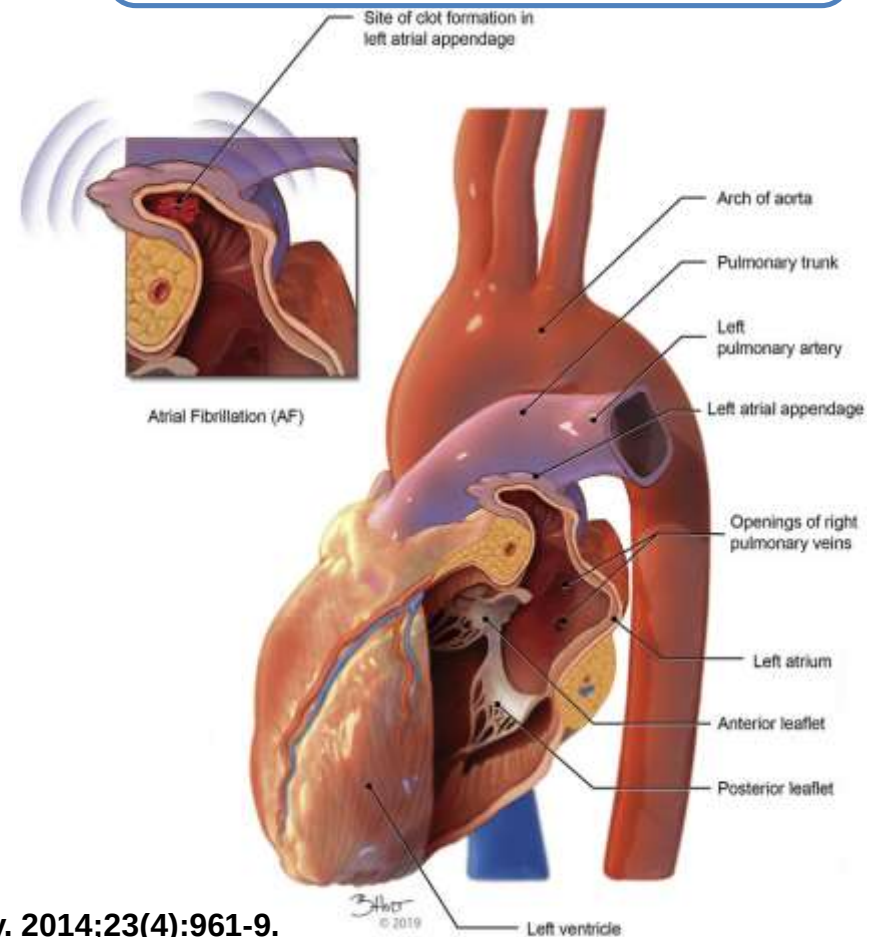
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Relevance

• Cardiovascular diseases, particularly **atrial fibrillation (AF)**, pose a substantial burden on global health, contributing significantly to morbidity and mortality rates. Among the complications associated with AF, thromboembolic events, **particularly strokes**, stand out as a major concern.

• In recent years, significant efforts have been dedicated to understanding the complex mechanisms underlying **left atrial appendage thrombus (LAAT)** formation (Fig. 1).

Fig 1. Thrombus formation in the left atrial appendage



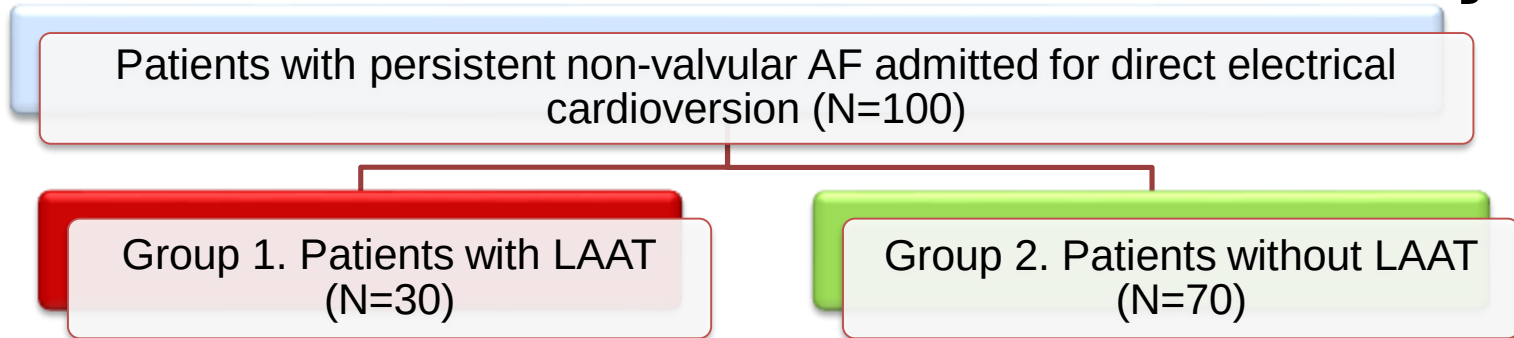
1. Staerk L, et al. Circ Res. 2017;120(9):1501-1517.
2. Fatkin D, et al. Journal of the American College of Cardiology. 2014;23(4):961-9.



Aim of the study

- To evaluate association between LV remodelling patterns and LAAT formation in patients with persistent AF.

Object



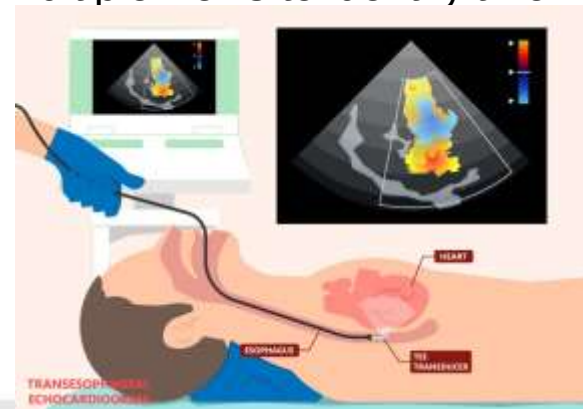
Methods

All patients underwent clinical, laboratory, and instrumental studies, including transthoracic echocardiography (TTE) and transesophageal echocardiography (TEE).

TEE was performed using Phillips iE33 device by an experienced echo cardiologist to assess for the presence of LAAT. The LAA was imaged in multiple views to identify thrombus



Fig 2. Transesophageal echocardiogram showing the large left atrial thrombus.

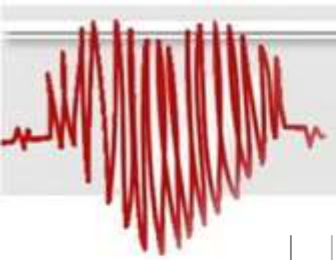




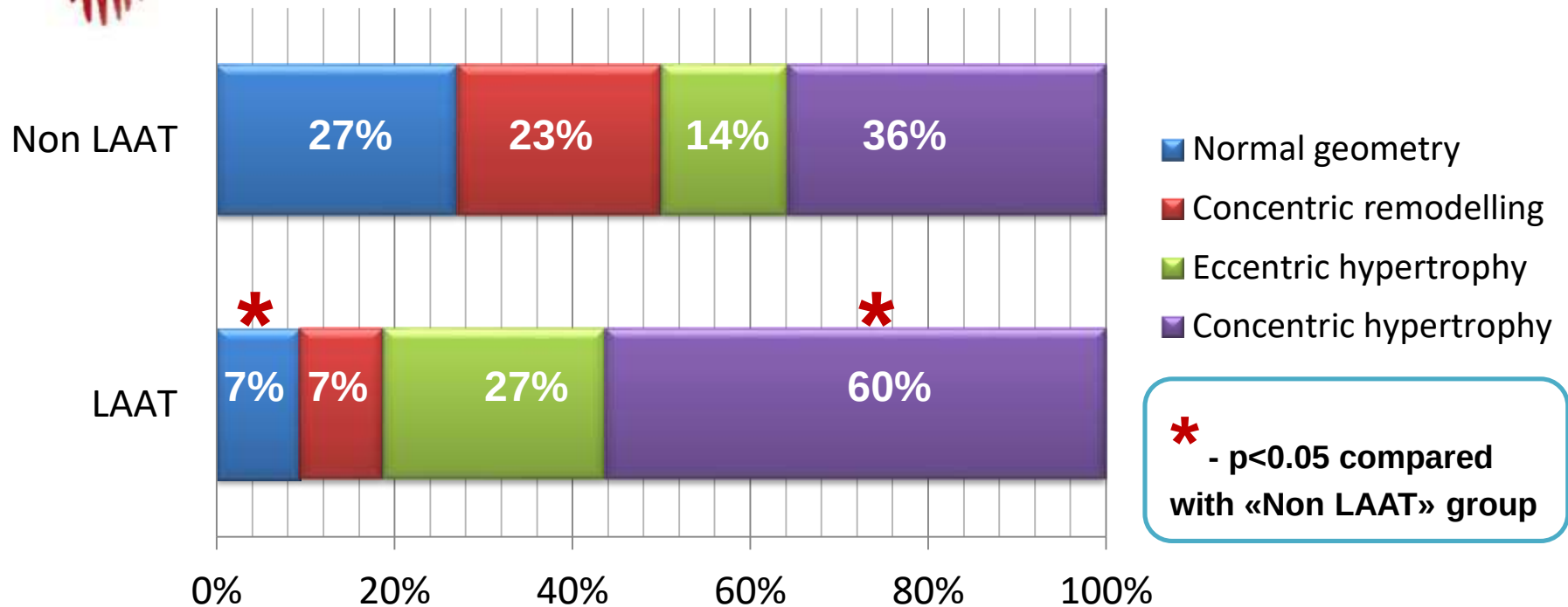
Echocardiographic parameters of patients [Me [25%;75%]]

Parameter	LAAT (n=30)	Non LAAT (n=70)	p
LA diameter, mm	46.8 [43; 50]	44.2 [41; 46]	0.060
LA area, mm ²	30.1 [27; 33]	27.2 [24; 30]	0.004
LA volume, ml	74.6 [61; 85]	63.8 [52; 72]	0.066
LVEF, %	49.2 [44; 60]	57.4 [55; 62]	0.019
LV ESD, mm	41.6 [33; 45]	36.1 [32; 40]	0.030
LV EDD, mm	54.8 [51; 58]	52 [48; 56]	0.220
LVMI, g/m ²	147.4 [119; 164]	121.3 [99; 136]	0.003
RWT, mm	0.45 [0.40; 0.50]	0.45 [0.40; 0.48]	0.662

- ✓ Patients with LAAT had lower LVEF (p=0.019) and higher LV ESD (0.030), which confirms systolic dysfunction development.
- ✓ Patients in the «LAAT» group had significantly higher LVMI (p=0.003) compared with «Non LAAT» group.
- ✓ However, there were no significant intergroup differences in RWT (p=0.662).



Left ventricular remodeling patterns in studied groups of patients



- ✓ In «LAAT» group only 2 (7%) patients had normal geometry of LV compared with 19 (27%) patients in «Non LAAT» group ($p=0.041$).
- ✓ Patients of both groups had no differences in concentric remodeling ($p=0.099$) and eccentric hypertrophy (0.232).
- ✓ Concentric hypertrophy was more common in «LAAT» group compared with «Non LAAT» group (18 (60%) vs 25 (36%), $p=0.042$)



Discussion

- Recently, new data have emerged on the relationship between the type of LV remodelling, AF and the risk of LAAT.
- Kishima H et al. classified LV hypertrophy as an additional echocardiographic risk factor for LAAT.
- In a study by Boyd AC et al. increased LVMI was identified as the most significant predictor of LAAT, which also confirms our data.

Conclusions

- Patients with persistent AF and LAAT had higher values of LVMI ($p=0.003$) and higher rate of LV concentric hypertrophy ($p=0.042$) in comparison with patients without LAAT.
- Further studies of these parameters could help predict LAAT development in patients with persistent AF.

Thank you for your attention!