

Epicardial Adipose Tissue And Atrial Fibrillation: GUILTY AS CHARGED OR GUILTY BY ASSOCIATION?

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BACKGROUND

- Epicardial adipose tissue (EAT) has been linked to the presence and burden of atrial fibrillation (AF);
- It is still unclear whether this relationship is causal or simply a surrogate marker of other risk factors commonly associated with AF;

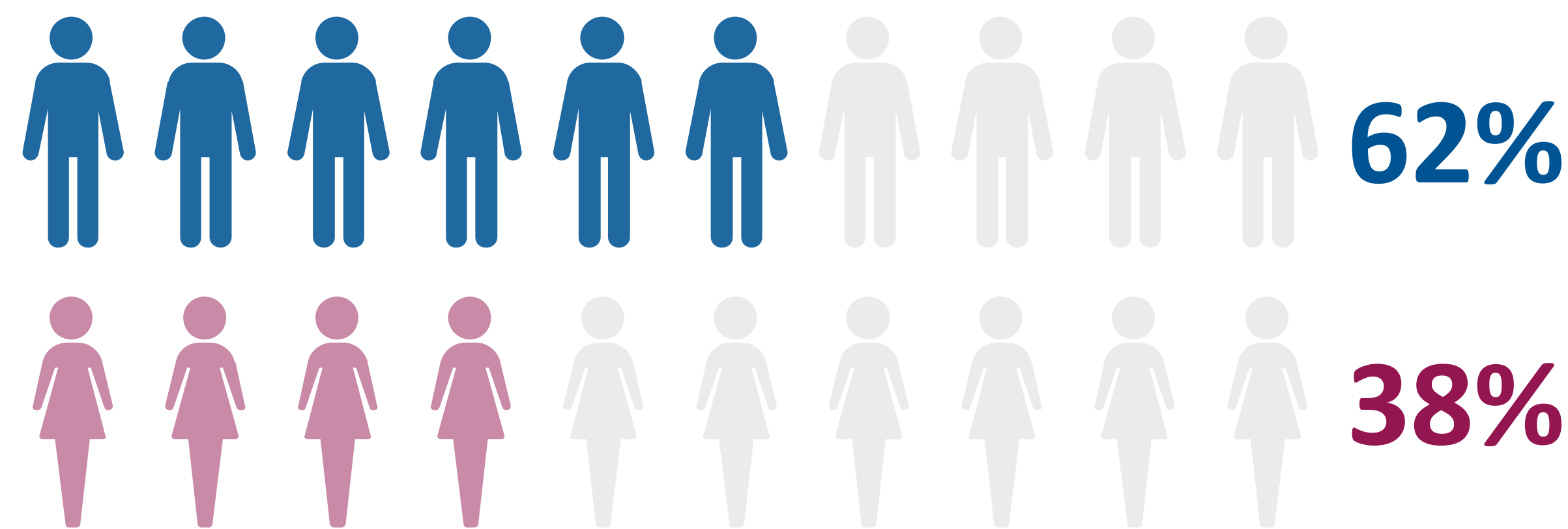
PURPOSE

- The purpose of this study was to assess the relationship between these factors and EAT, and to compare their performance in predicting AF recurrence after an ablation procedure;

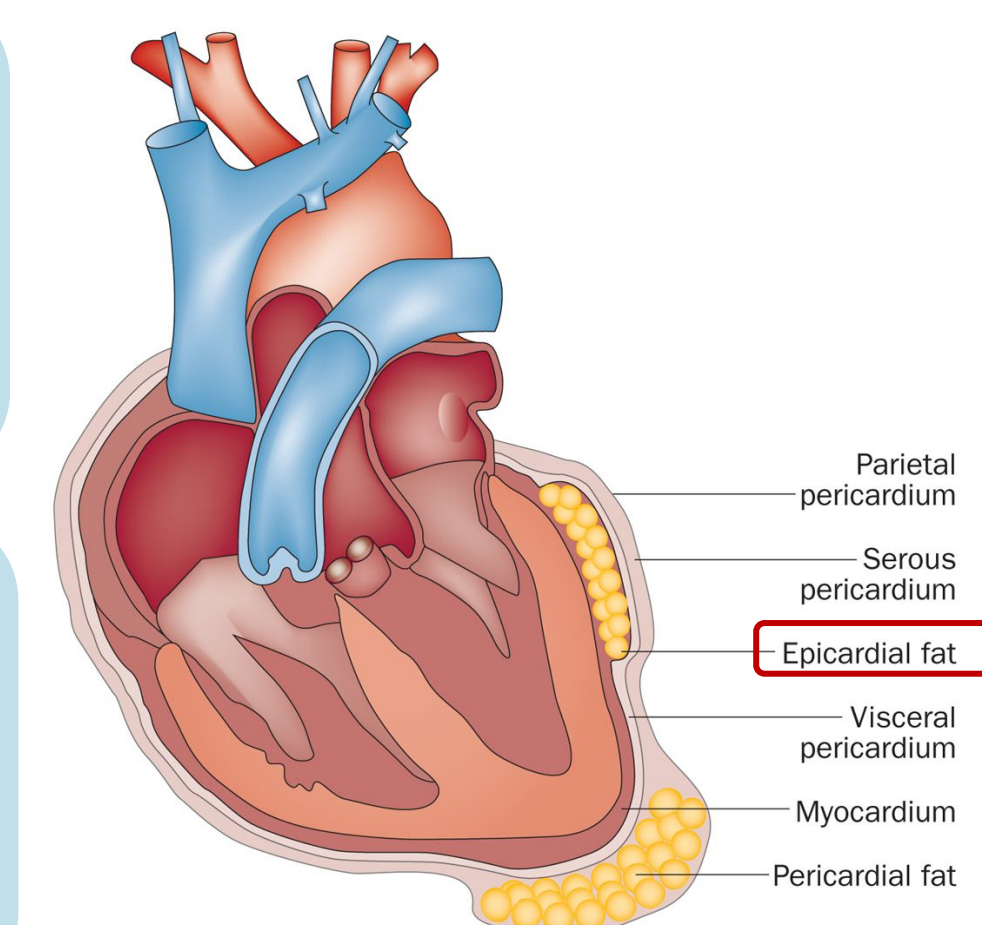
METHODS

- We assessed **575** consecutive patients (mean age 61±11 years, 62% male) undergoing AF ablation preceded by cardiac CT in a high-volume ablation center. EAT was measured on cardiac CT using a modified simplified method. Patients were divided into 2 groups (above vs below the median EAT volume). Cox regression was used to assess the relationship between epicardial fat, risk factors, and AF relapse.

575 patients, 61±11 years



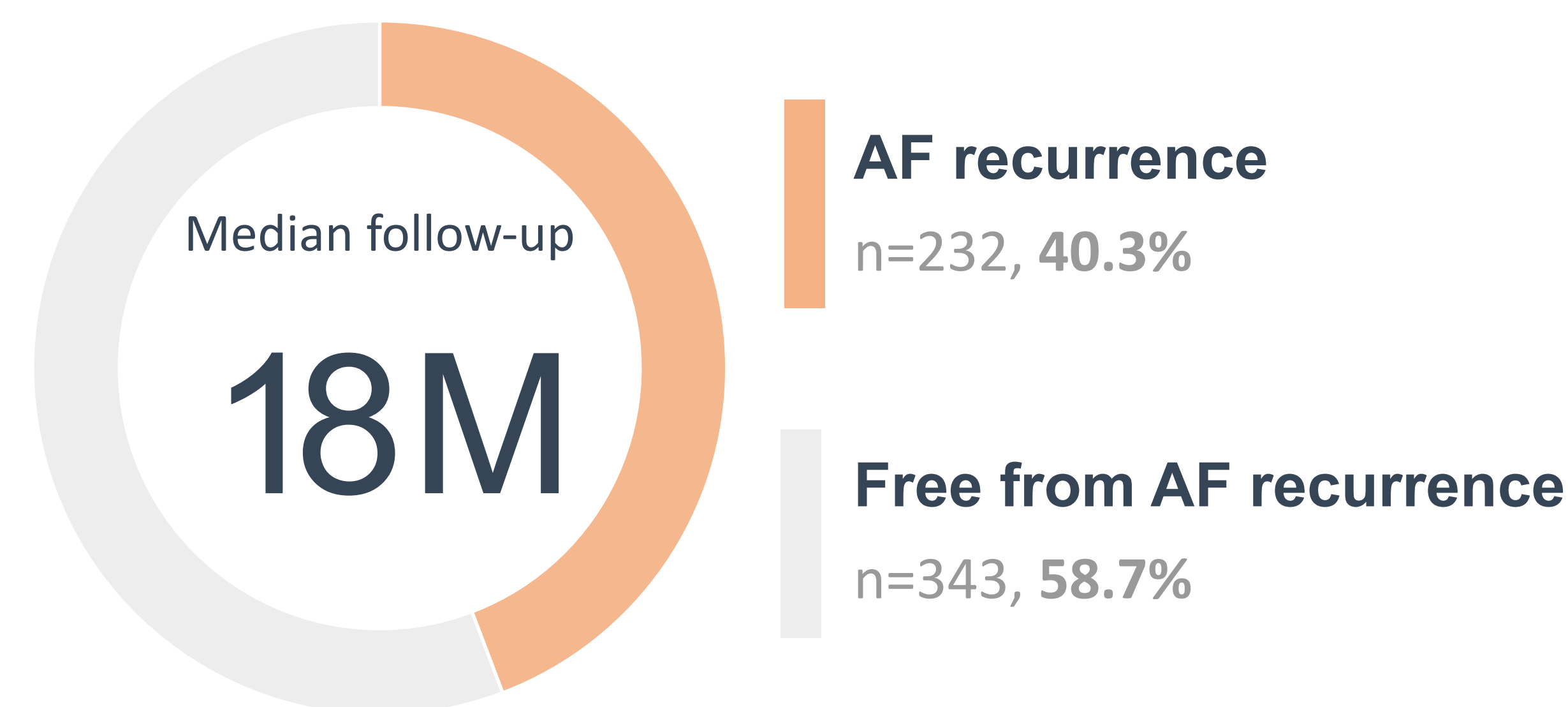
<Median EAT Volume
>Median EAT Volume



RESULTS

Baseline characteristics of our population

| | < Median EATVol | > Median EATVol | OR (CI95%) | p-value |
|--------------------------|-----------------|-----------------|---------------|---------|
| Age (years) | 58.6±12.3 | 64.1±9.4 | - | <0.001 |
| Gender (♂) | 55.4% | 67.7% | 1.7 (1.2-2.4) | 0.002 |
| BMI (Kg/m ²) | 26.8±4.0 | 29.3±4.0 | - | <0.001 |
| Smoking | 19.2% | 30.2% | 1.8 (1.2-2.7) | 0.002 |
| Hypertension | 51.9% | 70.5% | 2.2 (1.6-3.1) | <0.001 |
| Diabetes | 7.3% | 13.5% | 2.0 (1.1-3.5) | 0.015 |
| Dyslipidaemia | 41.8% | 56.9% | 1.8 (1.3-2.6) | <0.001 |
| Obesity (BMI>30) | 21.6% | 41.8% | 2.6 (1.8-3.8) | <0.001 |
| Non-paroxysmal AF | 17.1% | 26.7% | 1.8 (1.2-2.7) | 0.005 |



CONCLUSIONS

- Classic cardiovascular risk factors are more prevalent in patients with higher amounts of epicardial fat;
- However, unlike these risk factors, **EAT is a powerful predictor of AF recurrence** after ablation;
- These findings suggest that EAT is **not merely a surrogate marker**, but an important participant in the pathophysiology of AF;

Multivariate analysis for AF recurrence (Cox)

| | HR (CI 95%) | P-value |
|---------------------------|---------------------|---------|
| non-paroxysmal AF | 2.1 (1.5-2.7) | <0.001 |
| indexed LA volume | 1.006 (1.002-1.011) | <0.001 |
| epicardial fat volume/BSA | 1.87 (1.66-2.1) | <0.001 |

*none of the classic cardiovascular risk factors were an independent predictor of AF recurrence over time (all p>0.10)

COX regression for AF recurrence over time

