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# Independent prognostic significance of non invasive left atrial stiffness in outpatients with heart failure and reduced ejection fraction

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**Background and Aim.** Left atrial (LA) stiffness is an important marker of cardiac pump function, especially in patients with heart failure (HF) and preserved ejection fraction (HFpEF). The aim of this study was to evaluate the relationship between LA stiffness and cardiac events (CE) in HF patients with reduced ejection fraction (HFrEF).

**Methods.** This study included 136 consecutive HFrEF outpatients (mean age: 65 ± 11 years). A complete conventional and tissue Doppler imaging study was performed. The LA dimension and function were measured. Non invasive LA stiffness was calculated with the following formula: LA stiffness = E/e'ratio/LA strain. The cardiac events were HF hospitalization and cardiac death.

**Results.** During a median follow up of 55 ± 37 months, 51 patients had CE, they had higher NYHA functional class (p = 0.001), higher LV end-diastolic dimension (p = 0.001), higher LV end-systolic dimension (p = 0.04), lower EF (p < 0.001), higher E/A ratio (p = 0.01) and reduced TAPSE (p = 0.001) compared with patients without CE. LA volume index was higher (p = 0.001), LA strain was reduced and LA stiffness was increased in patients with CE compared to those without CE (p = 0.0001, p < 0.0001, respectively). LA stiffness exhibited the closest relationship with E/e' ratio (r = 0.67, p < 0.001). Survival analyses showed that LA stiffness [HR: 4.026 (1.300–12.468), p = 0.001] was the most powerful independent predictor of cardiac events[C1] . On ROC curve analysis, a LA stiffness < 0.82% was 81% sensitive and 73% specific (AUC 0.81, p < 0.001) in predicting clinical events (Figure 1).

**Conclusion.** In this cohort of outpatients with HFrEF, LA stiffness proved the most important predictor of clinical outcome.

[C1]

Abstract P1544 Figure.