Purpose: The aim of this study was to investigate the predictive value of markers of fibrinolysis with regard to maintenance of sinus rhythm after electrical cardioversion for atrial fibrillation (AF), and the effect of angiotensin II receptor blockade.

Methods: In a double blind, placebo-controlled study (Candesartan in the Prevention of Relapsing Atrial Fibrillation, CAPRAF), 171 patients with persistent AF were randomized to receive candesartan 8 mg once daily or placebo for 3–6 weeks before and candesartan 16 mg once daily or placebo for 6 months after cardioversion. As part of this study, plasma levels of tissue plasminogen activator (tPA) antigen and plasminogen activator inhibitor-1 (PAI-1) activity were measured at baseline and at the end of the study.

Results: Baseline PAI-1 activity was significantly lower in patients still in sinus rhythm at 6 months after cardioversion (9.5 U/mL (7.4, 12.7) versus 14.1 U/mL (9.1, 23.1), p=0.001). Kaplan-Meier survival analysis showed that patients with above median PAI-1 activity had a significantly higher recurrence rate of AF as compared to patients with below median activity (log rank, p=0.002). tPA levels were not related to rhythm outcome. Neither maintained sinus rhythm for 6 months nor treatment with candesartan affected tPA levels or PAI-1 activity.

Conclusion: Above median PAI-1 activity measured before electrical cardioversion for persistent AF was a strong predictor of AF recurrence.