

Posterior wall isolation improves outcomes for persistent AF with rapid posterior wall activity: a CAPLA substudy

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Background

Pulmonary vein isolation (PVI) is less effective in persistent AF (PerAF) than paroxysmal AF. However, the CAPLA randomised trial of PVI vs posterior wall isolation (PWI) did not support empiric PWI in PerAF. We examined PV and posterior wall (PW) electroanatomical (EA) characteristics to determine if select patients may benefit from additional PWI.

Aim

Determine the impact of PV and PW electrical characteristics on AF ablation outcomes in the CAPLA randomized study.

Method

Participants in AF at the time of ablation were included from the CAPLA study. Mean, shortest and longest PV, PW and left atrial appendage (LAA) cycle length (CL) measurements were annotated pre-ablation across 100 consecutive cycles and a high density left atrial (LA) voltage map completed following cardioversion. Cox proportional hazards regression examined clinical and EA predictors of AF recurrence. Follow up included remote rhythm monitoring for 12 months.

Results

A total of 151 patients (27% female, 65±9 years, 18% LsPerAF, LAVI 52±16ml/m², median AF duration 5 months [IQR 2-10]) were in AF and were randomized to PVI alone (50%) or PVI+PWI (50%).

Clinical, echocardiographic and EA parameters were comparable between groups(all p>0.05) including PV and PW characteristics.

Freedom from AF was comparable at 12 months (51.7% in PVI and 49.7% in PVI + PWI; p=0.564).

In the presence of rapid PW activity, the addition of PWI was associated with greater arrhythmia-free survival (56.4%) vs PVI alone (38.6%;HR 0.78,95% CI 0.67-0.94,Log Rank p=0.030).

There was no correlation between PWCL and posterior low voltage (r=-0.06,p=0.496) and the addition of PWI did not improve arrhythmia-free survival in subgroups with LA enlargement (HR 0.69, 95% CI 0.39-1.25, p=0.301), posterior low voltage (HR 1.06, 95% CI 0.68-1.66,p=0.807) or LsPerAF (HR 1.10, 95% CI 0.71-1.72,p=0.669).

Figure 1: Example of rapid posterior wall activity

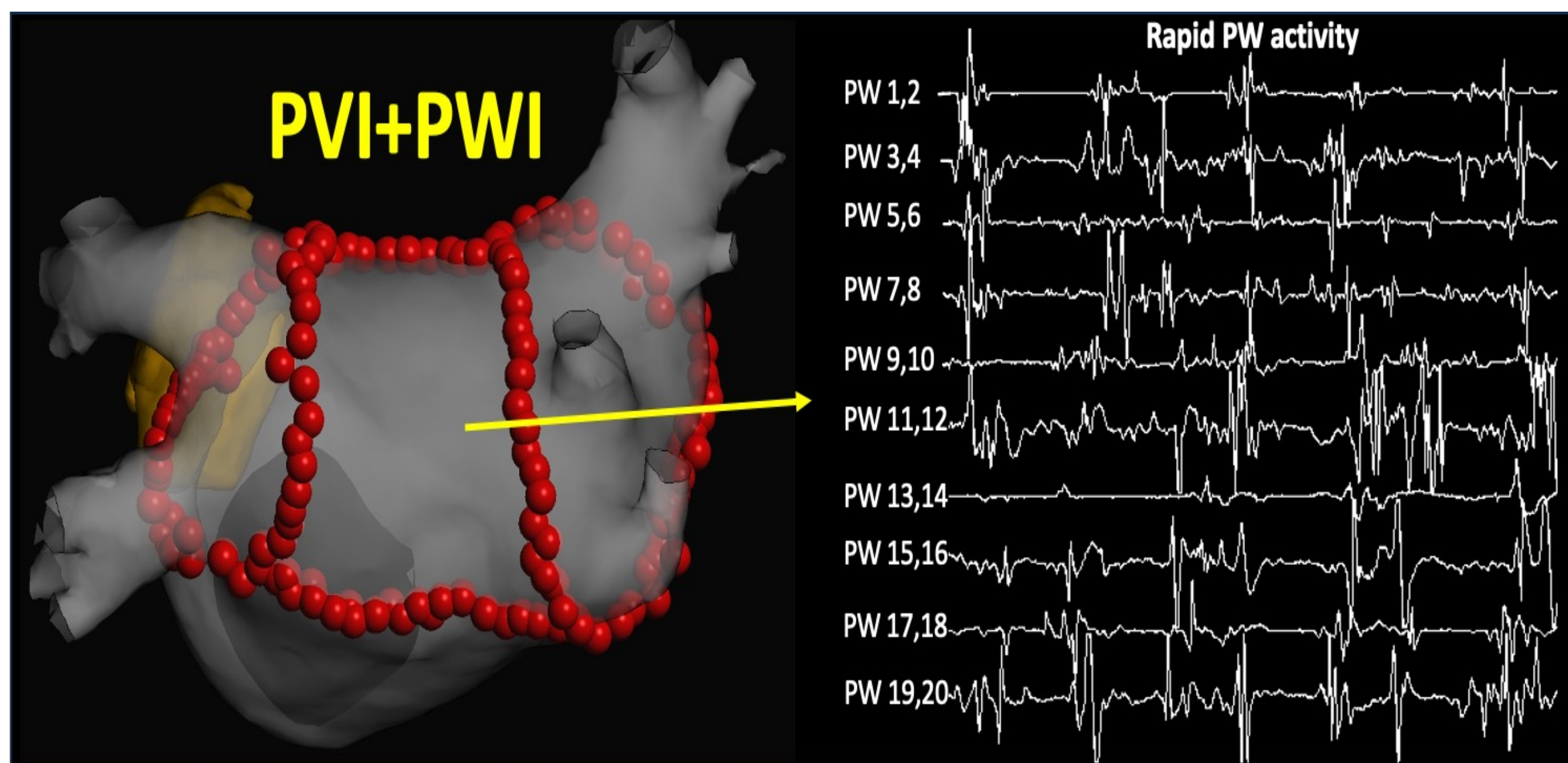
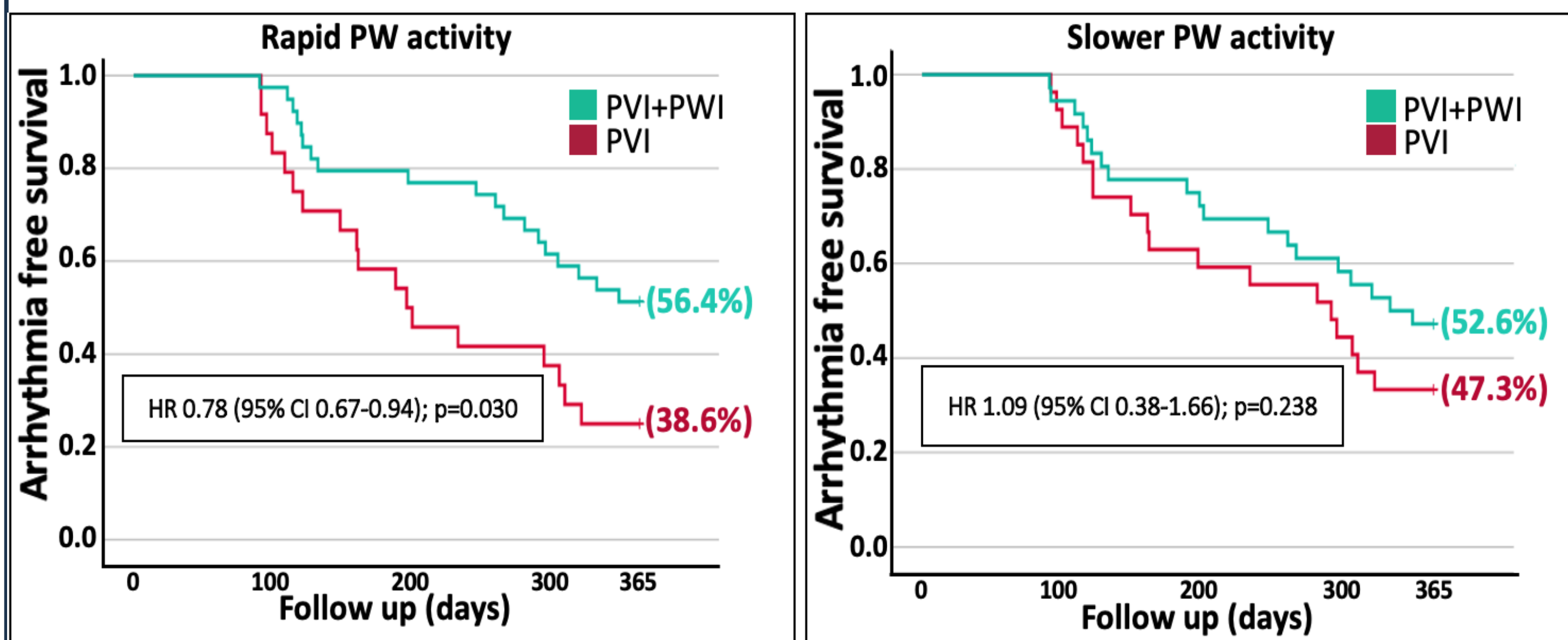


Figure 2: Arrhythmia-free survival according to the presence or absence of rapid posterior wall activity



Conclusion

Rapid PW activity is associated with an increased risk of AF recurrence post catheter ablation. The addition of PWI in this subgroup was associated with a significant improvement in freedom from AF compared to PVI alone. The presence of rapid PW activity may identify patients with persistent AF likely to benefit from PWI.