A Left sided site of origin is associated with adverse cardiovascular outcomes in patients with LV dysfunction undergoing PVC ablation

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Background: Epidemiological studies suggested that premature ventricular complexes (PVCs) are associated with cardiac mortality. But data are still inconclusive.

Aim: This study sought to analyze predictors of adverse outcomes in a population of patients with left ventricular (LV) systolic dysfunction who underwent PVC ablation.

Methods: 135 consecutive patients [100 (74%) men, 59 +12 y.o.] with LV systolic dysfunction [LV ejection fraction (LVEF) <50%] and frequent PVCs who underwent PVC ablation were included in a multicenter prospective international register. Patients were followed-up at 6 and 12 months and annually thereafter. The last evaluation performed was considered the long-term follow-up (LTFUP) evaluation. Cardiac mortality and/or cardiac transplantation and/or admission for heart failure was considered the primary endpoint.

Results: 82 (61%) patients had a left-sided PVC's site of origin (LS-SOO), 51 (38%) had a right-sided SOO (RS-SOO) whereas SOO could not be determined in 2 (1%) patients. LS-SOO patients were older (61 ± 11 vs 52 ± 10, $p < 0.001$) more frequently men [71 (87%) vs 27 (53%), $p < 0.001$] with previous history of atrial fibrillation (AF) [14 (15%) vs 0, $p = 0.001$] and with a previously diagnosed structural heart disease (SHD) [43 (52%) vs 6 (11%), $p < 0.001$].

After a mean follow-up of 39 ± 21 months (range 24-94 months) there was a significant reduction in the PVC burden from 24 ± 13% at baseline to 4 ± 6% at LTFUP, $p < 0.001$; LVEF improved from 33 ± 8% at baseline to 41 ± 13% at LTFUP ($p < 0.001$) and NYHA class from 2.1 ± 0.6% to 1.4 ± 0.6% ($p < 0.001$); BNP levels decreased from 237 ± 231 pg/mL to 137 ± 185 pg/mL ($p = 0.001$). The primary end-point was reached in 10% patients (7 cardiac deaths, 1 cardiac transplantation and 5 heart failure admisions), 14,8% in LS-SOO and 1,9% in RS-SOO patients, log rank = 0.05 (Figure 1).

Conclusions: Among patients with LV dysfunction who underwent PVC ablation, those with LS-SOO were older and more frequently had AF and SHD. LS-SOO was associated with adverse cardiovascular outcomes. These findings suggest that PVCs with LS and RS-SOO should be considered as two different clinicals entities, with different prognostic values.

Abstract Figure 1