

**Pengaruh Penurunan Beban Kontraksi Ventrikel Prematur  
*Right Ventricular Outflow Tract* Idiopatik Paska Ablasi Terhadap  
Fungsi Subklinis Biventrikel:  
Analisis Melalui *Speckle-Tracking Echocardiography***

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**ABSTRAK**

**Latar belakang:** Kompleks Ventrikel Prematur (KVP) idiopatik dari right ventricular outflow tract (RVOT) dapat menimbulkan gangguan fungsi miokard subklinis meski fraksi ejeksi normal. Speckle-tracking echocardiography (STE) sensitif dalam mendeteksi disfungsi longitudinal. Ablasi KVP menurunkan beban ektopik, namun bukti mengenai pemulihan strain biventrikel serta hubungannya dengan derajat penurunan beban KVP masih terbatas. Penelitian ini menilai pemulihan fungsi subklinis ventrikel kiri dan kanan setelah ablasi pada tindak lanjut 3 bulan.

**Tujuan:** Menilai pengaruh penurunan beban KVP ( $\Delta$ KVP%) terhadap perubahan parameter strain biventrikel ( $\Delta$ LV-GLS,  $\Delta$ RVFWLS,  $\Delta$ RV4CLS).

**Metode:** Studi kohort prospektif pre–post pada 43 pasien KVP RVOT idiopatik di RSUP Dr. Kariadi. Pemeriksaan STE dilakukan pra-ablasi dan 3 bulan sesudahnya. Analisis mencakup komparasi pra–pasca, korelasi  $\Delta$ KVP% terhadap  $\Delta$ strain, perbandingan kelompok  $\Delta$ KVP%  $<80\%$  vs  $\geq 80\%$ , dan regresi multivariat.

**Hasil:** Beban KVP menurun dari 16,65% menjadi 2,72%. Terdapat perbaikan bermakna pada LV-GLS ( $\Delta 2,86\%$ ), RVFWLS ( $\Delta 4,32\%$ ), dan RV4CLS ( $\Delta 3,97\%$ ) ( $p < 0,001$ ).  $\Delta$ KVP% berkorelasi dengan  $\Delta$ LV-GLS ( $p = 0,317$ ;  $p = 0,041$ ) dan  $\Delta$ RVFWLS ( $p = 0,462$ ;  $p = 0,002$ ), namun tidak dengan  $\Delta$ RV4CLS ( $p = 0,425$ ). Kelompok  $\Delta$ KVP%  $\geq 80\%$  menunjukkan peningkatan LV-GLS dan RVFWLS yang lebih besar dibanding kelompok  $<80\%$ . Analisis multivariat menunjukkan  $\Delta$ KVP% sebagai prediktor independen untuk  $\Delta$ LV-GLS ( $p = 0,026$ ) dan  $\Delta$ RVFWLS ( $p = 0,007$ ), tetapi bukan untuk  $\Delta$ RV4CLS.

**Kesimpulan:** Ablasi KVP RVOT memperbaiki fungsi subklinis biventrikel. Derajat penurunan beban KVP memprediksi perbaikan LV-GLS dan RVFWLS.

**Kata kunci:** KVP RVOT, strain, LV-GLS, RVFWLS, RV4CLS, ablasi

**Effect of Idiopathic Right Ventricular Outflow Tract  
Premature Ventricular Contraction Burden Reduction After Ablation on  
Biventricular Subclinical Function:  
A Speckle-Tracking Echocardiography Analysis**

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**ABSTRACT**

**Background:** Idiopathic premature ventricular complexes (PVC) originating from the right ventricular outflow tract (RVOT) may impair subclinical myocardial function despite preserved ejection fraction. Speckle-tracking echocardiography (STE) is sensitive for detecting longitudinal dysfunction. Catheter ablation effectively reduces PVC burden, but evidence on the magnitude of biventricular strain recovery and its quantitative relationship with PVC burden reduction remains limited. This study evaluated the recovery of left and right ventricular subclinical function after ablation at 3-month follow-up.

**Aim:** To assess the impact of PVC burden reduction ( $\Delta$ PVC%) on changes in biventricular strain parameters ( $\Delta$ LV-GLS,  $\Delta$ RVFWLS,  $\Delta$ RV4CLS).

**Methods:** A prospective cohort pre–post design was conducted in 43 idiopathic RVOT-PVC patients at Dr. Kariadi Hospital. STE was performed before ablation and at 3 months. Analyses included pre–post comparison, correlation of  $\Delta$ PVC% with  $\Delta$ strain, comparison between  $\Delta$ PVC%  $<80\%$  and  $\geq 80\%$  groups, and multivariable regression.

**Results:** PVC burden decreased from 16.65% to 2.72%. Significant improvements were observed in LV-GLS ( $\Delta 2.86\%$ ), RVFWLS ( $\Delta 4.32\%$ ), and RV4CLS ( $\Delta 3.97\%$ ) ( $p < 0.001$ ).  $\Delta$ PVC% correlated with  $\Delta$ LV-GLS ( $\rho = 0.317$ ;  $p = 0.041$ ) and  $\Delta$ RVFWLS ( $\rho = 0.462$ ;  $p = 0.002$ ), but not with  $\Delta$ RV4CLS ( $p = 0.425$ ). Patients achieving  $\Delta$ PVC%  $\geq 80\%$  showed greater improvements in LV-GLS and RVFWLS than those with  $\Delta$ PVC%  $< 80\%$ . Multivariable regression identified  $\Delta$ PVC% as an independent predictor of  $\Delta$ LV-GLS ( $p = 0.026$ ) and  $\Delta$ RVFWLS ( $p = 0.007$ ), but not  $\Delta$ RV4CLS.

**Conclusion:** Ablation of idiopathic RVOT-PVC significantly improves biventricular subclinical function. The degree of PVC burden reduction predicts recovery of LV-GLS and RVFWLS in a dose–response manner.

**Keywords:** *RVOT-PVC, strain, LV-GLS, RVFWLS, RV4CLS, ablation.*