The Correlation between Left Ventricle End Diastolic Pressure and P Dispersion in ST-Elevation Myocardial Infarction Patient

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Introduction: P-wave dispersion (Pwd) is defined as the difference between the maximum and the minimum P-wave duration recorded from 12 ECG leads. Pwd reflects prolongation in conduction time intra and interatrial. Studies show Pwd correlates with left ventricular diastolic dysfunction (LVDD). One of the marker of LVDD is elevated left ventricular end diastolic pressure (LVEDP) and common following myocardial infarction. This study aims to analyze the association between Pwd and LVEDP in ST-elevation myocardial infarction (STEMI) patients who underwent primary percutaneous coronary intervention (PCI).

Methods: This is a cross sectional study on STEMI patient admitted to Sardjito Hospital since December 2018 – January 2019 who underwent PCI and fulfilled the inclusion and exclusion criteria. The Pwd were measured in ECG using ImageJ program. Echocardiography examination results were performed and recorded.

Result: Thirty seven patients were included in this study with mean age was 57.31±11.07. Mean LVEDP was 9.712±4.300, mean Pwd was 73.886±25.184, mean EF was 43.08±9.37. No significant positive correlation was found between Pwd and parameters of left ventricular function. Pwd and lateral (e’ lat) annulus (P=0.977, R=0.005), medial (e’med) annulus (P=0.977, R=0.005), deceleration time (P=0.530, R=0.107), early filling/atrial filling velocity (E/A) (P=0.759, R=0.052), early mitral inflow velocity (E) (P=0.675, R=0.71), mitral annular early diastolic velocity (P= 0.902, R=0.021). We also found a non-significant positive correlation between LVEDP and Pwd (P=0.913; R=0.019).

Conclusion: There is no significant positive correlation between Pwd and LVEDP in patients with STEMI who underwent primary percutaneous coronary intervention.