

## Value of QRS Width and LV Dyssynchrony of Myocardial Perfusion Imaging in Predicting Cardiac Events

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**Purpose:** Recently, phase analysis software has been developed to assess mechanical left ventricular (LV) dyssynchrony from myocardial perfusion imaging (MPI). Prolonged QRS duration is a known index of poor prognosis. Our aim is to examine the relation of LV dyssynchrony detected by phase analysis and QRS width related with heart failure (HF) hospitalization and cardiac mortality.

**Methods:** During 2010, in 405 consecutive patients who referred to Tc sestamibi GSPECT MPI, we selected 143 with LVEF  $\leq$  50%. Phase analysis software was applied. In the phase analysis, LV dyssynchrony was measured by phase standard deviation (PSD). Patient's characteristics, risk factors of CAD, MPI, phase analysis results, LVEF and QRS width were analyzed. The patients were followed-up for cardiac events (HF hospitalizations and cardiac mortality) for  $437 \pm 75$  days.

**Results:**

	Events N=20	Control N=123	p value
Age	71 $\pm$ 12	66.3 $\pm$ 12	0.10
Diabetes Mellitus	12 (60%)	43 (35%)	0.059
Infarct Size (1-5)	3.2 $\pm$ 2	2.25 $\pm$ 1.7	0.04
QRS width	129.8 $\pm$ 40	105.52 $\pm$ 31	0.01
LVEF	26.15 $\pm$ 10	38.29 $\pm$ 20	0.0001
PSD	57.18 $\pm$ 24	39.59 $\pm$ 20	0.002

Bivariate logistic regression analysis (QRS width and PSD) was used because of the low number of events, and showed that PSD  $p=0.012$  was significantly related with cardiac events.

**Conclusion:** In addition to LVEF as a predictor of events, PSD of phase analysis was identified to be an independent predictor for heart failure hospitalization and cardiac mortality.