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Comparison of in-hospital mortality between acute inferior wall STEMI patients with right ventricular infarction and without right ventricular infarction undergoing a primary PCI in KCMH

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Background: Patients with acute inferior wall ST elevation myocardial infarction, if there is a right ventricular myocardial infarction involvement, they have pretended a worse prognosis with hemodynamic and electrophysiologic complications causing higher in-hospital morbidity and mortality. However most patients in previous studies were mainly treated with intravenous fibrinolysis and also studied in the Caucasian populations.

Objectives: To compare the in-hospital mortality rate of patients with acute inferior wall ST elevation myocardial infarction with and without right ventricular infarction involvement, whom were treated with primary percutaneous coronary intervention (PPCI).

Methods: The study was a retrospective descriptive study which enrolled patients with acute inferior wall ST elevation myocardial infarction who were treated with PPCI in our hospital from 1 January 2007 - 31 December 2016.

Results: Among 452 acute inferior wall ST elevation myocardial infarction patients who were treated with PPCI, there were 99 patients who had right ventricular infarction involvement, the in-hospital mortality rate was 23.2%, mainly due to cardiogenic shock, compared with 5.1% in patients who had no right ventricular infarction (p < 0.001). Patients with right ventricular infarction had a significantly higher incidence of cardiogenic shock (48.5% versus 15.6%, P < 0.001), the lower number of left ventricle ejection fraction (51.15 ± 17.27% versus 55.79 ± 12.46%, p = 0.037), the higher incidence of complete heart block (33.3% versus 11.9%, p < 0.001) and ventricular tachycardia (15.2% versus 5.9%, p = 0.003). After adjustment for age, female sex, diabetes, hypertension, previous myocardial infarction, cardiogenic shock on admission, left ventricular ejection fraction, ventricular tachycardia and complete heart block, the right ventricular infarction remained the independent predictor of in-hospital death (adjusted hazard ratio, 1.69; 95% confidence interval, 0.38 to 7.48; P = 0.489) and significant independent predictor for 1-year mortality (adjusted hazard ratio, 2.76; 95% confidence interval, 1.08 to 7.03; P = 0.034).

Conclusion: Patients with acute inferior wall STEMI whom were treated with PPCI, if there was right ventricular infarction involvement, the in-hospital death and 1-year mortality were significantly higher than who were without right ventricular infarction.