

Heart Rate Behind Systemic Inflammatory Response Syndrome Associated with One-Year Mortality in the Patients with Acute Myocardial Infarction?

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In the recent issue of *Acta Cardiologica Sinica*, Huang et al. showed systemic inflammatory response syndrome (SIRS) was independently associated with one-year mortality in patients with acute myocardial infarction (AMI) and clearly elucidated the detrimental effects of SIRS on mortality through myocardial hypoperfusion, vascular endothelial dysfunction, and systemic inflammation.¹ Another study in Taiwan also provided complementary evidence that incremental leukocyte counts were independently associated with one-year mortality on the top of TIMI risk score in patients with ST-elevation myocardial infarction;² however, a crucial factor might confound with the association between SIRS and mortality in the study of Huang.

The SIRS vs. non-SIRS group had significantly greater values of leukocyte count but had similar levels of C-reactive protein which was not correlated with mortality; additionally, body temperature was similar between the

two groups.¹ It suggests that the major effect of SIRS on mortality possibly originated from other components of SIRS such as respiratory or heart rate, representing heart failure severity. We might postulate heart rate as the direct predictor regarding no correlation between the presence or severity of heart failure and mortality in the study.¹ Heart rate is a vital predictor in patients with acute coronary syndrome and every 30 beats per min increment of the pulse was associated with an approximate twenty percent increase in six-month mortality.³ The utility of TIMI and GRACE score was also validated to predict mortality in the Chinese population with AMI recently.⁴ Therefore, heart rate behind SIRS might be the true predictor of one-year mortality in the study.¹

REFERENCES

1. Huang WC, Chou RH, Chang CC, et al. Systemic inflammatory response syndrome is an independent predictor of one-year mortality in patients with acute myocardial infarction. *Acta Cardiol Sin* 2017;33:477-85.
2. Yeh YT, Liu CW, Li AH, et al. Rapid early triage by leukocytosis and the thrombolysis in myocardial infarction (TIMI) risk score for ST-elevation myocardial infarction undergoing primary percutaneous coronary intervention: an observational study. *Medicine (Baltimore)* 2016;95:e2857.
3. Fox KA, Dabbous OH, Goldberg RJ, et al. Prediction of risk of death and myocardial infarction in the six months after presentation with acute coronary syndrome: prospective multinational observational study (GRACE). *BMJ* 2006;333:1091.
4. Chen YH, Huang SS, Lin SJ. TIMI and GRACE risk scores predict both short-term and long-term outcomes in Chinese patients with acute myocardial infarction. *Acta Cardiol Sin* 2018;34:4-12.

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