

The Criteria of Systemic Inflammatory Response Syndrome Present Varying Impacts on One-Year Mortality in Patients with Acute Myocardial Infarction

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We read with interest the letter responding to our previously published article.¹ The authors hypothesized that heart rate (HR), rather than systemic inflammatory response syndrome (SIRS), is the vital predictor of one-year mortality in patients with acute myocardial infarction (AMI). Change of HR is one of the diagnostic criteria of SIRS, which included HR > 90 beats/minutes, respiratory rate (RR) > 20 breaths/minutes, temperature > 38 °C or < 36 °C, and leukocyte count > 12000 or < 4000/cumm.² To investigate the inference of SIRS, HR, and other criteria, we re-analyzed the dataset of our study.¹ Cox regression analysis was performed to determine the independence of SIRS and its criteria in predicting one-

year mortality in patients with AMI. The results were summarized in Table 1. SIRS, HR, and RR were all significantly associated with one-year mortality in the univariable analysis. HR > 90 beats/minutes was still an independent risk factor after adjusting the RR. However, the association between SIRS and one-year mortality became insignificant after adjusting baseline HR and RR. When evaluating the prognosis of patients with AMI, the influence of HR is greater than RR or other criteria of SIRS. These results support the hypothesis that, HR behind SIRS is the key predictor of one-year mortality in patients with AMI.

CONFLICT OF INTEREST OR EXTERNAL SOURCE OF FUNDING

None.

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Table 1. Cox regression for one-year mortality in patients with different criteria of systemic inflammatory response syndrome (SIRS) after acute myocardial infarction

| Variable | Univariable | | Model 1* | | Model 2 [#] | |
|-------------------------|------------------|---------|------------------|---------|----------------------|---------|
| | HR (95% CI) | p value | HR (95% CI) | p value | HR (95% CI) | p value |
| SIRS group | 1.71 (1.06-2.76) | 0.028 | | | 1.16 (0.63-2.13) | 0.635 |
| HR > 90 beats/minutes | 1.82 (1.13-2.95) | 0.014 | 1.75 (1.08-2.84) | 0.023 | 1.64 (0.93-2.87) | 0.085 |
| RR > 20 breaths/minutes | 1.95 (1.20-3.16) | 0.007 | 1.05 (1.00-1.12) | 0.075 | 1.05 (0.98-1.12) | 0.154 |
| BT > 38 °C or < 36 °C | 1.07 (0.64-1.81) | 0.791 | | | | |
| WBC > 12000 or < 4000 | 1.32 (0.80-2.19) | 0.280 | | | | |

* Adjusted for statistically significant variables in univariate analysis, except for SIRS. [#] Adjusted for all statistically significant variables in univariate analysis (included SIRS).

BT, body temperature; CI, confidence interval; HR, heart rate; RR, respiratory rate; SIRS, systemic inflammatory response syndrome; WBC, white blood cells.

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