Acta Cardiol Sin 2015;31:87–88
Letter to the Editor
doi: 10.6515/ACS20140721C

Hyperuricemia as an Outcome Predictor in Patients with ST-Segment Elevation Myocardial Infarction: Too Good to be True?

Cheng-Wei Liu,[1,2,3] Pen-Chih Liao,[1] Yen-Wen Wu[1,4,5] and Shin-Rong Ke[1]

Hyperuriacemia has been reported as an independent predictor of short- and long-term prognosis in patients with acute coronary syndrome.[1,2] In the recent issue of Acta Cardiologica Sinica, Akgul et al. advocated that uric acid > 5.7 mg/dl was associated with increased in-hospital and six-month cardiovascular death in Turkish patients with ST-segment elevation myocardial infarction (STEMI) undergoing angioplasty.[3] The level of uric acid upon hospital admission is a powerful predictor of six-month mortality, with a hazard ratio as high as 5.57. However, one aspect of the study must be noted. Although the enrollment of consecutive patients was stated, most patients in the study were at Killip's class I (91.9%), which is not a common condition of general practice.

In our own five-year retrospective cohort, we analyzed 944 STEMI patients undergoing primary percutaneous coronary intervention (pPCI). Patients with hyperuircemia (uric acid > 7 mg/dl) had elevated six-month (8.2% vs. 4.2%, p = 0.019) and one-year mortality (9.6% vs. 5.0%, p = 0.014). In univariate analysis, hyperuricemia was associated with higher one-year mortality (hazard ratio: 1.97, 95% CI: 1.18-3.27, Table 1). However, after adjustment for age, gender, body mass index, and creatinine, hyperuricemia was no longer a significant risk factor. In the subgroup analysis divided by Killip's classification, hyperuricemia remained an independent predictor of one-year mortality in patients at Killip I, even after adjustment for potential confounders. However, the association is not significant in patients at Killip II to IV. There was a significant interaction between hyperuricemia and Killip's classification associated with one-year mortality (p for interaction = 0.04). The same association was found between hyperuricemia and six-month mortality.

We suggest that the association between hyperuricemia and the outcome of STEMI patients is dependent upon disease-severity and has the greatest impact on low risk groups (i.e., patients classified as Killip I). In general cases, when the disease severity of STEMI is divergent, the role of hyperuricemia on mortality is not so significant.

Received: July 4, 2014 Accepted: July 21, 2014
[1]Cardiology Division of Cardiovascular Medical Center, Far Eastern Memorial Hospital, New Taipei City; [2]Department of Internal Medicine, Tri-Service General Hospital, Songshan Branch; [3]National Defense Medical Center, Taipei; [4]Department of Nuclear Medicine, Far Eastern Memorial Hospital, New Taipei City; [5]National Yang-Ming University School of Medicine, Taipei, Taiwan.
Address correspondence and reprint requests to: Dr. Shin-Rong Ke, Cardiology Division of Cardiovascular Medical Center, Far Eastern Memorial Hospital, New Taipei City, Taiwan. Tel: 886-929830318; Fax: 886-2-7738-6057; E-mail: ksrung@yahoo.com.tw

REFERENCES

1. Kaya MG, Uyarel H, Akpek M, et al. Prognostic value of uric acid in

Table 1. Association between hyperuricemia and one-year mortality in patients with STEMI undergoing pPCI by Cox-proportional logistic regression analysis

	Number	Death (n)	Death (%)	Crude HR (95% CI)	p	Adjusted HR* (95% CI)	p
Total	944	67	7.1	1.97 (1.18-3.27)	0.009	1.31 (0.77-2.22)	0.32
Killip I	511	13	2.5	5.47 (1.65-18.16)	0.006	4.84 (1.42-16.48)	0.01
Killip II~IV	433	54	12.5	1.32 (0.74-2.34)	0.34	0.97 (0.53-1.77)	0.93

* Age, gender, body mass index, and creatinine were adjusted.
HR, hazard ratio; pPCI, primary percutaneous coronary intervention; STEMI, ST-segment elevation myocardial infarction.

patients with ST-elevated myocardial infarction undergoing primary coronary intervention. *Am J Cardiol* 2012;109:486-91.
2. Ndrepepa G, Braun S, Haase HU, et al. Prognostic value of uric acid in patients with acute coronary syndromes. *Am J Cardiol* 2012;109:1260-5.
3. Ozgur A, Huseyin U, Hamdi P, et al. Predictive value of elevated uric acid in Turkish patients undergoing primary angioplasty for ST elevation myocardial infarction. *Acta Cardiol Sin* 2014;30: 119-27.