



The relationship between NT-proBNP and Depression in Patients with Heart Failure

Ying-Hui GAO¹, Lin LIU^{2,*}

¹Peking University Hepatology Institute, Peking University People's Hospital, Peking University, Beijing, China

²Nanlou Respiratory Disease Department, Chinese PLA General Hospital, Beijing, China

J Geriatr Cardiol 2017; 14: 715–716. doi:10.11909/j.issn.1671-5411.2017.11.009

Keywords: C-reactive protein; Heart failure; NT-proBNP

To the editor

We read the article entitled “Depression is associated with increased C-reactive protein levels in patients with heart failure and hyperuricemia”. In this article WANG, *et al.*^[1] reported that serum hs-CRP may be an independent marker for severity of depression in heart failure patients with hyperuricemia. The authors suggested that the relationship between the role of inflammation in the pathogenesis of depression and heart failure may help to devise new strategies. However, we have some suggestions about this study: there was no control group and plasma N-terminal pro-brain natriuretic peptide (NT-proBNP) is not investigated in study group.

It is known that NT-proBNP is a well-established biomarker for congestive heart failure, and may facilitate the early predictor of heart failure hospital admissions, and depressed left ventricular function. Furthermore, in a study by Zhang *et al.*^[2] which enrolled 141 patients with chronic heart failure, plasma NT-proBNP in hyperuricemia patients were significantly higher than those in non-hyperuricemia patients.

In congestive heart failure patients, a variable prevalence

of cognitive impairment, anxiety and depression have been described. one study recruited 303 congestive heart failure patients, has revealed a significant correlation between mini mental state examination and age, BNP. They also found that geriatric depression scale and anxiety and depression scale test were inversely correlated with New York Heart Association class and six-minute walking test.^[3]

In conclusion, it is a nice study, but we think it would be better if they can take NT-proBNP level into account.

References

- 1 Wang Y, Zhen YZ, Zhai JL, *et al.* Depression is associated with increased C-reactive protein levels in patients with heart failure and hyperuricemia. *J Geriatr Cardiol* 2017; 14: 282–284.
- 2 Zhang YH, Lu R, Zhao XY, *et al.* Association of serum uric acid, plasma NT-proBNP, Hs-C reactive protein and invasive hemodynamic parameters in patients with heart failure. *Zhonghua Xin Xue Guan Bing Za Zhi* 2009; 37: 126–129.
- 3 Feola M, Garnero S, Vallauri P, *et al.* Relationship between cognitive function, depression/anxiety and functional parameters in patients admitted for congestive heart failure. *Open Cardiovasc Med J* 2013; 7: 54–60.

*Correspondence to: liulin715@qq.com

Authors' reply

Yu WANG¹, Chao LIU^{1,2}

¹The First Cardiology Division, The First Hospital of Hebei Medical University, Shijiazhuang, China

²Cardiovascular Research Center, Hebei Medical University, Shijiazhuang, China. (dr.liuchao@gmail.com)

We thank Dr. Gao and colleagues for their critical reading our study and raising a good suggestion about the relationship between NT-proBNP and depression in heart failure.^[1] Just as Dr. Gao pointed out, plasma NT-proBNP levels were much higher in hyperuricemia patients with heart failure than those without hyperuricemia, which is consistent with our previous finding that uric acid levels is an index of impaired renal function and severity of disease in congestive heart failure.^[2] In the past decade, several observational studies have examined the relationship between natriuretic peptides [such as NT-proBNP and B-type natriuretic peptide (BNP)] and depression either in patients with heart failure or without heart failure. In patients with heart failure, the previous studies suggested that there may be an association between elevated natriuretic peptide levels and depression.^[3–5] In patients without heart failure, a recent study documented that there was still a weak but statistically significant association between NT-proBNP and depression in elderly people with type 2 diabetes. But, their results are not conclusive and restricted by small sample size. More importantly, their populations were not heart failure with hyperuricemia. We fully agree with Dr. Gao that the rela-

tionship between NT-proBNP and depression in heart failure needs to be confirmed and such study is currently underway.

References

- 1 Wang Y, Zhen YZ, Zhai JL, *et al.* Depression is associated with increased C-reactive protein levels in patients with heart failure and hyperuricemia. *J Geriatr Cardiol* 2017; 14: 282–284.
- 2 Tian Y, Chen Y, Deng B, *et al.* Serum uric acid as an index of impaired renal function in congestive heart failure. *J Geriatr Cardiol* 2012; 9: 137–142.
- 3 Parissis JT, Nikolaou M, Farmakis D, *et al.* Clinical and prognostic implications of self-rating depression scales and plasma B-type natriuretic peptide in hospitalised patients with chronic heart failure. *Heart* 2008; 94: 585–589.
- 4 Ancheta IB, Battie C, Cobb S, *et al.* The impact of B-type natriuretic peptide, New York Heart Association classification and depression on quality of life in nonhospitalized heart failure patients. *Prog Cardiovasc Nurs* 2009; 24: 124–130.
- 5 Aguiar VB, Ochiai ME, Cardoso JN, *et al.* Relationship between depression, BNP levels and ventricular impairment in heart failure. *Arq Bras Cardiol* 2010; 95: 732–737.