

Is Brain Natriuretic Peptide specific for the left atrial appendage?

Erdi Babayiğit¹, Andaç Karadeniz², and Bulent Gorenek¹

¹Eskişehir Osmangazi University

²Erzurum Bolge Egitim ve Arastirma Hastanesi

March 2, 2023

Abstract

Dear Editor, We read with great interest the article recently published in Journal of Cardiovascular Electrophysiology, “Left atrial appendage dimension predicts elevated brain natriuretic peptide in nonvalvular atrial fibrillation” by Cook JA. et al. ¹ The authors have studied the relation between Brain natriuretic peptide (BNP) elevations and left atrial appendage measurements in patients who referred for left atrial appendage (LAA) occlusion in patients with nonvalvular atrial fibrillation (AF). BNP release is largely from the ventricles and it is also dynamically dependent on myocardial stretch and fluid volume status. However, it seems difficult to prove that BNP levels are directly related to the LAA measurements. Correlating BNP elevation only with left atrial or LAA measurements means ignoring left ventricular strain. Considering that these patients were referred for LAA occlusion and had a high CHA₂DS₂-VASc score, and not taking heart failure with preserved ejection fraction into account may lead to errors in interpreting the results. Moreover, it should be evaluated that the left atrial appendage may undergo remodeling or enlargement as a result of the left ventricular end-diastolic pressure increase. In this case, although the study is valuable, remains a cross-sectional study and a snapshot of the correlation of BNP and LAA. Second, it should be disclosed whether patients have paroxysmal or chronic AF and how long the patient has had AF. A relationship was established between LAA dimensions and BNP in the study, it is essential that the duration of AF should be considered and subgroup analyses should be evaluated if possible, since AF has a significant effect on BNP release. We appreciate this study and believe that a more detailed evaluation including left ventricular evaluation and prospectively monitored LAA and BNP would yield more realistic results. In addition, we think that it would be useful to evaluate midregional pro-A-type natriuretic (MR-proANP) in LAA studies, which is specific to the left atrial enlargement and similar physiology to BNP. ²

Is Brain Natriuretic Peptide specific for the left atrial appendage?

Erdi Babayiğit, MD¹, Andaç Karadeniz, MD², Prof. Bülent Görennek, MD, FACC, FESC¹

1.Eskişehir Osmangazi University, School of Medicine, Department of Cardiology, Eskişehir, Turkey

2. Erzurum State Hospital, Department of Internal Medicine, Erzurum, Turkey

Corresponding Author:

Erdi Babayiğit, MD

Department of Cardiology,

Eskisehir Osmangazi University School of Medicine,

Eskisehir, Turkey

Tel: +90 535 740 9486

e-mail: erdibabayigit@gmail.com

Dear Editor,

We read with great interest the article recently published in Journal of Cardiovascular Electrophysiology, “Left atrial appendage dimension predicts elevated brain natriuretic peptide in nonvalvular atrial fibrillation” by Cook JA. et al.¹ The authors have studied the relation between Brain natriuretic peptide (BNP) elevations and left atrial appendage measurements in patients who referred for left atrial appendage (LAA) occlusion in patients with nonvalvular atrial fibrillation (AF).

BNP release is largely from the ventricles and it is also dynamically dependent on myocardial stretch and fluid volume status. However, it seems difficult to prove that BNP levels are directly related to the LAA measurements. Correlating BNP elevation only with left atrial or LAA measurements means ignoring left ventricular strain. Considering that these patients were referred for LAA occlusion and had a high CHA₂DS₂-VASc score, and not taking heart failure with preserved ejection fraction into account may lead to errors in interpreting the results. Moreover, it should be evaluated that the left atrial appendage may undergo remodeling or enlargement as a result of the left ventricular end-diastolic pressure increase. In this case, although the study is valuable, remains a cross-sectional study and a snapshot of the correlation of BNP and LAA.

Second, it should be disclosed whether patients have paroxysmal or chronic AF and how long the patient has had AF. A relationship was established between LAA dimensions and BNP in the study, it is essential that the duration of AF should be considered and subgroup analyses should be evaluated if possible, since AF has a significant effect on BNP release.

We appreciate this study and believe that a more detailed evaluation including left ventricular evaluation and prospectively monitored LAA and BNP would yield more realistic results. In addition, we think that it would be useful to evaluate midregional pro-A-type natriuretic (MR-proANP) in LAA studies, which is specific to the left atrial enlargement and similar physiology to BNP.²

Cook JA, Lancaster MC, Kanagasundram AN, et al. Left atrial appendage dimension predicts elevated brain natriuretic peptide in nonvalvular atrial fibrillation. *J Cardiovasc Electrophysiol* . 2023;34(1):135-141. doi:10.1111/jce.15719

Behnes M, Sartorius B, Wenke A, et al. Percutaneous Closure of Left Atrial Appendage affects Mid-Term Release of MR-proANP. *Sci Rep* . 2017;7(1):9028. Published 2017 Aug 22. doi:10.1038/s41598-017-08999-4