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## Letter to the Editor

### Independent effects of both right and left ventricular function on plasma brain natriuretic peptide levels

We read with great interest the article by Vogelsang et al. [1], regarding the independent effects of both the left and right ventricles on plasma brain natriuretic peptide (BNP) levels. The findings seem to be very important and also justify the high prognostic value of plasma BNP, as levels seem to be the result of both left (LV) and right ventricular (RV) dysfunction. As the authors also point out, the BNP plasma level could not be explained simply by the left and right ejection fraction, as the statistical model including both failed to reach statistical significance. So this fact was hard to explain and the authors concluded that the left and right ventricles independently affect the plasma concentration of BNP, thus BNP is also a marker of RV dysfunction. This fact has provoked us to make a few comments.

The study population was not homogenous, as patients presented with dysfunction of the left, right or both ventricles due to different aetiologies. Moreover, we can assume that pressure or volume or both types of overload eventually lead to RV dysfunction. This fact may be important because in terms of BNP synthesis, volume overload seems to influence the RV in a different way to pressure overload. Although it is still the subject of debate, in our opinion this should be taken into account [2,3]. This problem might be at least partially explained by performing an additional analysis incorporating an adjustment for RV overload type and plasma BNP level.

Moreover, there is general agreement that BNP production is stimulated by different factors that increase wall stress. Three types of natriuretic peptide receptors (NPR) have been described. NPR-A and NPR-B mediate the majority of the biological activities of the natriuretic peptides via guanosine 3',5'-cyclic monophosphate (cGMP), whereas NPR-C has no ability to generate cGMP and does not seem to have any biological activity. Nevertheless, NPR-C (clearance receptors) are responsible for local natriuretic peptides being removed from the circulation. Thus, plasma BNP levels are

not just related to changes in BNP synthesis, but also to changes in NPR-C expression. Moreover, other authors have found that NPRs expression was dependent on which chamber was taken into consideration. Additionally, the overload type could influence it too [4,5].

To conclude, we consider this article very important in helping to understand how the LV and RV influence BNP synthesis. We hope our remarks help to contribute to a better understanding of this complex phenomenon.

### References

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