Baroreflex Sensitivity and Renal Sympathetic Denervation

We appreciate the insightful comments of Drs. Ormezzano and Baguet on our paper (1). In our proof-of-concept study, we demonstrated for the first time that impaired spontaneous cardiac baroreflex sensitivity (BRS) might be a valuable tool for identification of patients with hypertension who might benefit from renal sympathetic denervation (RDN). It is correct that we assessed BRS in 2 ways, namely, by phase-rectified signal averaging (PRSA; BRS_{PRSA}) and by the sequence method (BRS_{SEQ}). It is also correct that the prognostic value of BRS_{PRSA} in predicting response to RDN was superior to that of BRS_{SEQ}. However, our study was neither powered nor intended to compare the predictive values of different BRS measures. According to our pre-specified hypothesis, we defined BRS_{PRSA} as the primary variable, which was therefore tested in multivariate models. Importantly, we did not show that RDN led to restoration of impaired BRS as mentioned by Drs. Ormezzano and Baguet. This interesting hypothesis will be tested in upcoming projects.

The assessment of BRS by PRSA is conceptually new and differs from previous approaches to BRS assessment in many aspects. PRSA is a comprehensive signal processing technology that is capable of extracting periodic patterns out of complex biological signals such as recordings of heart rate, blood pressure, and respiratory activity (2,3). An extension of the PRSA technology allows the analysis of coupled periodic patterns in simultaneously recorded biosignals, which is of obvious advantage in assessment of spontaneous BRS (4,5). We agree that the prognostic value of a BRS measure is of great importance. The prognostic value of BRS_{PRSA} has been prospectively validated in 941 surviving patients with acute myocardial infarction, for which it proved to be superior to that of BRS_{SEQ} and other techniques in prediction of 5-year all-cause mortality (6). We acknowledge the promising results of BRS_{SEQ} as a risk predictor in patients with hypertension in the EVABAR (Evaluation of the Prognostic Value of Baroreflex Sensitivity in Hypertensive Patients) study. Therefore, we would like to suggest that Drs. Ormezzano and Baguet conduct a blinded analysis of BRS_{PRSA} in patients of the EVABAR study.

REFERENCES


Christine S. Zuern, MD
Christian Eick, MD
Konstantinos D. Rizas, MD
Sarah Bauer
Harald Langer, MD
Meinrad Gawaz, MD
*Axel Bauer, MD
*Innere Medizin III, Kardiologie und Kreislauferkrankungen
Ortfried-Müller-Strasse 10
72076 Tübingen
Germany
E-mail: bauer@thebiosignals.org

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