**New Baroreflex Sensitivity Assessment Technique**

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**Background.** Baroreflex sensitivity (BRS) is a prominent noninvasive prognostic parameter in chronic heart failure (CHF). BRS can be measured noninvasively by computing the blood-pressure-to-heart-rate transfer function in the LF (0.05-0.15 Hz) band from a recording of the continuous arterial blood pressure (Finapres) and the ECG, made under 15/min metronome breathing. When the squared blood-pressure-to-heart-rate coherence in the LF band is below 0.50, BRS is usually considered invalid (it is assumed that BRS in such cases does not significantly differ from zero). In practice, low coherence is frequently seen in patients, hence this validity criterion renders noninvasive BRS measurement virtually impossible in, e.g., CHF.

**Methods.** We measured BRS in a group of 21 rehabilitating CHF patients (15 male, 6 female; median age 61±11 yrs, NYHA-class 2±1.1), to detect a possible difference between day 0 (control) and 2 (effect). We calculated BRS in the conventional way with the coherence criterion, and also according to an improved strategy in which 95% confidence intervals of BRS are computed (Pinna & Maestri, Med Biol Eng Comput 2001; 39: 346-349). This strategy does not only allow for a more correct decision about using/discard a given BRS measurement, but facilitates also subsequent weighted statistical analysis of the valid BRS data.

**Results.** According to the coherence-based strategy only 4/21 (19%) patients had valid controls and limitations (7/21 (33%) had valid effect BRS values. Paired BRS comparison (control-effect) was only possible in 2/21 (10%) of the patients, and no meaningful statistical analysis could be made. Contrastingly, weighted statistics with the new confidence interval-based strategy revealed a significant (P=0.016) BRS increase from 3.57±1.98 to 5.60±2.78 ms/mmHg.

**Conclusions.** Our study demonstrates that the coherence-based strategy excluded greater part of the study group from the analysis. The new confidence-interval based strategy yielded in the same group a very significant BRS increase. This methodological improvement hence contributes greatly to the clinical applicability of noninvasive BRS assessment.