Reproducibility of baroreflex sensitivity measured by a neck suction method

J. BENE, M. A. HORAN and J. E. CLAGUE
Department of Geriatric Medicine, Clinical Science Building, Hope Hospital, Stott Lane, Salford M6 8HD, U.K.

Lord et al. [1] report wide intra-subject variability of different non-invasive measures of baroreflex sensitivity (BRS) and caution against over-interpretation of minor differences. The authors do not discuss an alternative non-invasive measure of BRS, i.e. the neck suction technique [2–4]. As a preliminary investigation prior to a study of the recovery of cardiovascular reflexes following injury, we have assessed the within-day and between-day variability of the baroreflex measured using the neck suction technique. Healthy male subjects (n = 12, mean age 31.6 years; range 21–41 years) were studied in the fasting state after micturition. Subjects underwent testing twice, 20 min apart at the same times, on each of 2 days, 7 days apart. Brief applications of negative pressure were applied during held expiration using an R wave-triggered solenoid device. Multiple pressures were applied, each for five consecutive R–R intervals, in random order. The relationship between change in heart period before and after neck suction was determined and plotted against negative pressure. The slope of this relationship, determined by least-squares linear regression, is a measure of baroreflex sensitivity [4]. The median and range of BRS plus the median within-day and between-day variability of the slopes (all four slopes), measured as coefficient of variation, are shown in Table 1.

Variability is of a similar magnitude to those of the other techniques reported by Lord et al. [1]. The application of positive as well as negative pressure offers the possibility of examining the full range of response of the baroreflex, unlike phenylephrine infusion. The neck suction technique remains a useful non-invasive method for determining BRS.

Table 1 Baroreflex sensitivity (ms/mmHg), median and range and within-day and between-day variability (coefficient of variation) in healthy male subjects (n = 12)

<table>
<thead>
<tr>
<th>Day</th>
<th>Baroreflex sensitivity (ms/mmHg)</th>
<th>Within-day coefficient of variation (%)</th>
<th>Between-day coefficient of variation (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Day 1</td>
<td>4.2 (0.8–13)</td>
<td>21.8 (1.8–73.6)</td>
<td>—</td>
</tr>
<tr>
<td>Day 2</td>
<td>3.8 (0.74–14.1)</td>
<td>18.9 (1.8–45)</td>
<td>—</td>
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<td></td>
<td>—</td>
<td>—</td>
<td>28.0 (15.2–53)</td>
</tr>
</tbody>
</table>

REFERENCES

Abbreviation: BRS, baroreflex sensitivity.
Correspondence: Dr J. E. Clague.