P8.01: REFERENCE VALUES FOR CAROTID STIFFNESS AND IMT

L. Engelen, P. Boutouyrie, I. Ferreira, C.D.A. Stehouwer, S. Laurent


To link to this article: https://doi.org/10.1016/j.artres.2010.10.083

Published online: 21 December 2019
S. Laurent 2 and reducing life expectancy, even in the presence of stenosis resolution, finding (50% of treated patients), leading to major cardiovascular events aortic coarctation treatment. Residual arterial hypertension is a frequent Balloon dilation with stent implantation is a novel technique of University of Padua, Padua, Italy L. Aresu, O. Milanesi, A. Semplicini


REFERENCE VALUES FOR CAROTID STIFFNESS AND IMT
L. Engelen 1, P. Boutouyrie 2, I. Ferreira 1, C. D. A. Stehouwer 1, S. Laurent 2

1Maastricht University Medical Centre, Maastricht, Netherlands 2Hôpital Européen Georges Pompidou, Paris, France

Arterial properties, such as carotid distention and intima-media thickness (IMT) are important markers of arterial stiffness and atherosclerotic disease and have been shown to predict cardiovascular events. However, the application of these measurements in clinical practice has been hampered by the absence of reference values. The aim of the present study is to establish reference and normal values for carotid stiffness and IMT. Measurements of carotid wall thickness and function obtained by an echo tracking system (Walltrack and ArtLab, Esaote, Maastricht, Netherlands) are available for individuals from several combined European (n = 9000) and Chinese (n = 1500) cohort studies. After pooling, data will be analysed in order to obtain normal values of carotid stiffness and IMT as estimated in the ‘normal population’, which will be constituted from those selected individuals with no acquired cardiovascular risk factors (i.e. diabetes, use of antihypertensive and/or lipid lowering medication, dyslipidaemia, smoking) or overt cardiovascular disease and optimal blood pressure values. Other populations with one or more risk factors will serve to scale stiffness and IMT between populations and to obtain reference values. A special attention will be focused on bringing correspondence between echo tracking and image analysis techniques to allow for conversion, and carotid stiffness values calculated from central pressure and/or brachial pressure.

The study is currently ongoing, which enables presentation of the exact design. Definitive results are expected for Artery 2011.

P8.02

LARGE DIFFERENCES IN CENTRAL PRESSURE ESTIMATION BETWEEN SPHYGMOCOR AND OMROM HEM 9000AI
J. Kips 1, 2, A. Schutte 3, S. J. Vermeersch 1, 2, H. Huisman 2, L. Van Bortel 1, P. Segers 2

1Heymans Institute of Pharmacology, Gent University, Gent, Belgium 2HiTech-bioMMeda, Gent University, Gent, Belgium 3Hypertension In Africa Research Team, North-West University, Potchefstroom, South Africa

Introduction: Central systolic blood pressure (cSBP) has been shown to have a higher predictive value than brachial (cuff) pressure. Accurate cSBP, however, is difficult to obtain non-invasively and is often estimated from carotid or transformed peripheral pressures. In this study, the cSBP estimate from the Omron HEM 9000AI was compared to the SphygmoCor cSBP estimate and to carotid SBP. Whilst SphygmoCor uses a radial-to-aortic transfer function to calculate cSBP, the Omron HEM 9000 AI uses a regression equation which relies on the correlation between the second systolic peak of the radial pressure waveform and cSBP.

Methods: Radial applanation tonometry was performed in 251 rural black South Africans (aged 36-91 years) enrolled in the PURE study. Each subject was measured with an Omron HEM 9000AI and a SphygmoCor. Four different estimates of central pressure were calculated: (i) Omron device (cSBP-Omron); (ii) SphygmoCor, with calibration of the radial pressure by brachial SBP and DBP (cSBP-Sphygmo); (iii) SphygmoCor, with calibration of the radial pressure by brachial MAP and DBP obtained from brachial tonometry (cSBP-Sphygmo2, N = 201) and (iv) carotid SBP obtained through carotid tonometry calibrated with brachial MAP and DBP (cSBP-carotid, N = 143).

<table>
<thead>
<tr>
<th></th>
<th>Mean (SD) [mmHg]</th>
</tr>
</thead>
<tbody>
<tr>
<td>cSBP-Omron</td>
<td>145.9 (25.5)</td>
</tr>
<tr>
<td>cSBP-Sphygmo</td>
<td>127.4 (22.5)</td>
</tr>
<tr>
<td>cSBP-Sphygmo2</td>
<td>131.2 (24.4)</td>
</tr>
<tr>
<td>cSBP-Carotid</td>
<td>138.0 (26.4)</td>
</tr>
</tbody>
</table>

Bland-Altman

Mean cSBP (mmHg)