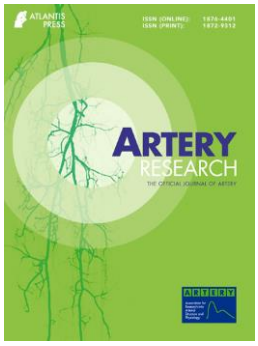

Artery Research

ISSN (Online): 1876-4401 **ISSN (Print): 1872-9312**
Journal Home Page: https://www.atlantis-press.com/journals/artres

P7.05: AORTIC STENT IMPLANTATION IN THE ISTHMIC REGION IN AN ANIMAL MODEL

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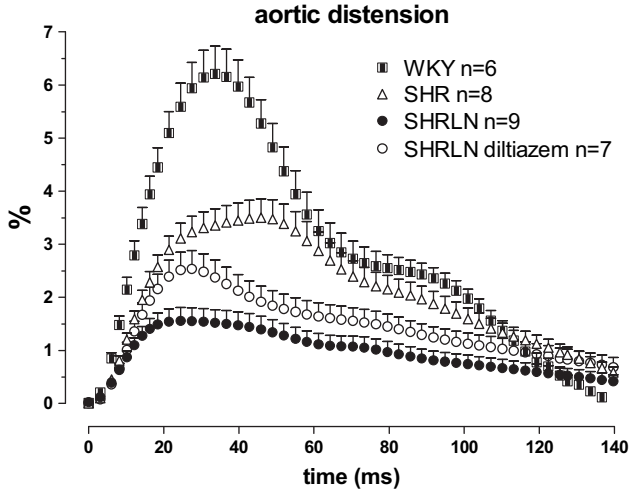
To cite this article: L. Semplicini, H. Poser, I. Iacopetti, N. Maschietto, E. Valerio, G. Ceolotto, T. Pilla, G.M. De Benedictis, G. Gerardi, F. Stella, D. Bernardini, S. Basso, L. Aresu, O. Milanesi, A. Semplicini (2010) P7.05: AORTIC STENT IMPLANTATION IN THE ISTHMIC REGION IN AN ANIMAL MODEL, Artery Research 4:4, 169–169, DOI: https://doi.org/10.1016/j.artres.2010.10.082

To link to this article: https://doi.org/10.1016/j.artres.2010.10.082

Published online: 21 December 2019



P7.05
AORTIC STENT IMPLANTATION IN THE ISTHMIC REGION IN AN ANIMAL MODEL

L. Semplicini, H. Poser, I. Iacopetti, N. Maschietto, E. Valerio, G. Ceolotto, T. Pilla, G. M. De Benedictis, G. Gerardi, F. Stella, D. Bernardini, S. Basso, L. Aresu, O. Milanesi, A. Semplicini
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Background: Balloon dilation with stent implantation is a novel technique of aortic coarctation treatment. Residual arterial hypertension is a frequent finding (50% of treated patients), leading to major cardiovascular events and reducing life expectancy, even in the presence of stenosis resolution,
Aim of This Study: To determine feasibility of stent implantation in the aortic isthmus of an ovine model for the study of pressor, haemodynamic and hormonal changes induced in the growing animal.
Materials and Methods: Platinum-iridium stent was implanted in the aortic isthmus of 6 females sheep through vascular catheterization (STENT group). Vascular catheterization and angiographic study was performed in 6 control sheep (SHAM). All subjects had direct aortic pressure measurement during catheterization as well as echocardiographic and blood pressure measurements (through auricular artery catheterization) every 90 days. Twelve months after intervention the animals were sacrificed.
Results: Stent implantation did not affect growth and quality of life of the animals. Aortic pressure measurements performed during catheterization revealed a pressure wave morphology compatible with acute *augmentation index* alteration after stenting implantation. Auricular blood pressure did not differ among groups. One subject died after surgery for vascular access haemorrhage. Another subject died a few days after intervention. One subject developed aortic insufficiency after catheterization.
Conclusions: Stent implantation is feasible and well tolerated. This animal model can be useful to study the hemodynamic impact and the aortic stiffness induced by stent implantation and their consequences on the left ventricle and the vasculature.

Methodology
P8.01
REFERENCE VALUES FOR CAROTID STIFFNESS AND IMT

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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 OMRON HEM 9000AI

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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).

	Mean (SD) [mmHg]
cSBP-Omron	145.9 (25.5)
cSBP-Sphymo	127.4 (22.5)
cSBP-Sphymo2	131.2 (24.4)
cSBP-Carotid	138.0 (26.4)