CON: GLUCOSE IS THE MOST IMPORTANT TARGET FOR CARDIOVASCULAR PREVENTION IN DIABETES

Francesco Giorgino

To cite this article: Francesco Giorgino (2017) CON: GLUCOSE IS THE MOST IMPORTANT TARGET FOR CARDIOVASCULAR PREVENTION IN DIABETES, Artery Research 20:C, 46–46, DOI: https://doi.org/10.1016/j.artres.2017.10.012

To link to this article: https://doi.org/10.1016/j.artres.2017.10.012

Published online: 7 December 2019
ARTERIAL HEMODYNAMICS AND WAVE REFLECTIONS

Patrick Segers a, Alun Hughes b
aIBiTech-bioMMeda, Ghent University, Gent, Belgium
bInstitute of Cardiovascular Science, University College London, London, UK

Despite years of research, there are still some contentious aspects of arterial hemodynamics that have remained unresolved. These were discussed during a workshop entitled Arterial hemodynamics: past, present and future held in London on June 14 and 15, 2016, with keynote contributions by Nico Westerhof, Kim Parker and Michael O’Rourke. In follow-up of that meeting, we formulated a list of potential consensus statements informed by discussion at the meeting in London and quantified the degree of agreement and invited comments from the participants of the workshop. The survey was set up making use of Google forms.

Overall the responses and comments show a high measure of quantitative agreement and subsequent effects leading to differences between measures of brachial and aortic pressures.

Focus update

CENTRAL BP MEASUREMENT AND VALIDATION: THE ENGINEER’S POINT OF VIEW

Siegfried Wassertheurer
AIT Austrian Institute of Technology GmbH, Vienna, Austria

The non-invasive assessment of aortic (central) pressure evolved as an emerging clinical research area over the last two decades. Several non-invasive methods and devices were developed to support these investigations. A variety of technical approaches and sites of peripheral signal acquisition have been established to non-invasively estimate aortic pressure, but interchangeability of results was limited due to the lack of standardization. To overcome this threatening situation, an ARTERY Society task force was set up to provide a consensus document with recommendations regarding appropriate protocols to assess and report the evaluation of accuracy of devices measuring aortic pressure.

This presentation aims to provide background information about the genesis of the actual ARTERY consensus document and discusses resulting strengths and opportunities. Furthermore, it reviews the document from an engineering viewpoint, focusing on several novel and strong statements that have been proposed in the published consensus document, e.g. for the first time ever invasive (preferably solid state) catheter measurements as the sole reference (gold) standard for comparison have been defined. Amongst other relevant topics, particular focus is brought to issues of waveform calibration and subsequent effects leading to differences between measures of brachial and aortic pressures.

McDonald lecture

THE METABOLIC-MICROVASCULAR DYSREGULATION SYNDROME

Coen D. A. Stehouwer
Department of Internal Medicine, Maastricht University Medical Centre+, 6202 AZ Maastricht, The Netherlands

Microvascular and metabolic physiology are inextricably linked. Thus, metabolic dysfunction impairs microvascular function and microvascular dysfunction impairs normal metabolism. The relationship is therefore reciprocal, justifying the concept of a 'Metabolic-Microvascular Dysregulation Syndrome'. For example, metabolic dysregulation (hyperglycaemia) causes microvascular dysfunction, diabetic retinopathy and diabetic nephropathy. Conversely, microvascular dysregulation impairs insulin-mediated glucose disposal, i.e. causes insulin resistance, impairs insulin secretion, and is associated with onset of type 2 diabetes in prospective studies. Obesity is a key driver of the Metabolic-Microvascular Dysregulation Syndrome, as it impairs insulin signal transduction in endothelial cells through adverse changes in adipokines such as adiponectin, free fatty acids and tumour necrosis factor-α. Microvascular dysfunction in obesity appears reversible by diet-induced weight loss. Next to obesity, other factors are also likely to play a role. Examples are microvascular dysfunction of adipose tissue as a primary cause of adipose tissue dysfunction; early life exposures, both antenatal and postnatal; and large artery stiffening. Large artery stiffening is unquestionably important for microvascular function in susceptible organs such as the brain, the eye and the kidney but whether it can cause microvascular dysfunction in metabolically crucial tissues such as skeletal muscle, pancreas and adipose tissue has not been studied. It is therefore not clear that arterial stiffening in and of itself is sufficient to cause the Metabolic-Microvascular Dysregulation Syndrome.

Keywords: Microcirculation; microvascular function; endothelium; metabolism; hyperglycaemia; insulin resistance; obesity