Practice Information:

Supporting therapy decision in Hypertension

Clinical Background

Often the question is raised if one should start intervention on a patient presenting a practice blood pressure of 130-159/85-99 mmHg or a LDL-value of 130 – 190 mg/dl (3.4 – 4.9 mmol/l).

The decision to start intervention can be based on evidence of subclinical end-organ-damage such as arterial stiffness measured by aortic pulse wave velocity (aPWV).

Evidence based data from Ben-Shlomo et al. demonstrate that aPWV is predictive for cardio-vascular events, independent of age. The predictive value of aPWV is significantly superior to the sole capture of common risk factors, such as hypertension, hypercholesteremia or the Framingham risk score.

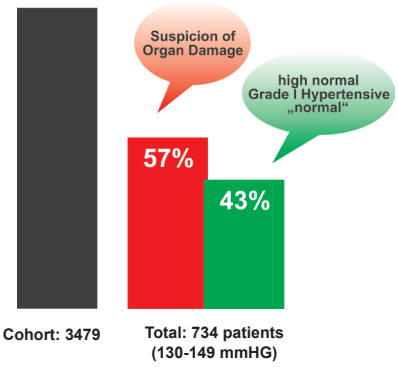

Fig. 1
Differentiation between high and low risk patients (in percentage)

Therapy Management

PWV measurement: The use of a standard upper-arm cuff allows the simultaneous measurement of blood pressure and aPWV in one process stratification: An increased aPWV value classifies the patient into a “high risk”, instead of “low risk” group.[2]

Clinical Monitoring: Therapy progress and success can be documented by the measurement of aPWV.

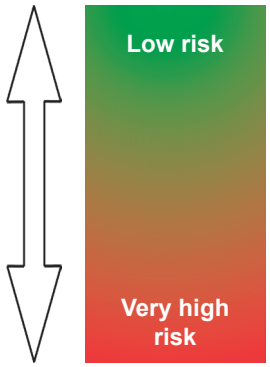

Fig. 2
aPWV re-classifies patients according to their individual risk

Reimbursement

aPWV measurement may be offered to patients as a “vascular age measurement”.
The measurement can be utilized within the framework of prevention programs (for example during check-up programs).
Reimbursement for aPWV measurement is expanding to many countries. In others, the examination is commonly paid for by the patients themselves.

Practice Information:

Supporting therapy decision in Hypertension

Methodology

Device Technology: Mobil-O-Graph® (Mobil-O-Graph® NG Classic including PWA Upgrade or Mobil-O-Graph® 24h PWA).

Measurement: Blood pressure and aortic PWV measurement in one process.

Clinical Validation: The measurement of aPWV using Mobil-O-Graph® correlates significantly with invasive catheter measurements. The very high correlation of R = 0.81 is also confirmed by a reproducibility of 0.05 m/s (ranging from -0.47 to 0.57 m/s).[3]

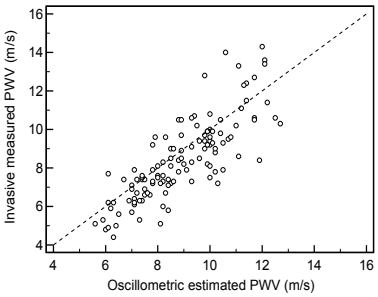

Fig. 3
High agreement between Mobil-O-Graph® and invasive catheter measurement of PWV

Technology Features

Measurements: To be applied as Practice/Clinic or as 24h ambulatory measurement.

HMS-CS Upgrade: The HMS CS software application can be easily upgraded to perform practice/clinic pulse wave velocity by using the licensed PWA Dongle (USB).

Fig. 4 Upgrade-Dongle
HMS CS software upgrade PWA Dongle in combination with Mobil-O-Graph® NG Classic 24h ABPM enables the measurement of blood pressure and pulse wave velocity in one process

Further Information

For more detailed information on the measurement of aPWV measurement in your practice and/or clinic we invite you to visit our I.E.M. GmbH web-site (www.iem.de) or request information under info@iem.de or via + 49 2402 9500-0.

Literature and sources:

1. Aortic Pulse Wave Velocity Improves Cardiovascular Event Prediction; An Individual Participant Meta-Analysis of Prospective Observational Data From 17,635 Subjects; Yoav Ben-Shlomo, et al ; Journal of the American College of Cardiology Vol. 63, No. 7, 2014

2. 2013 ESH/ESC Guidelines for the management of arterial hypertension; Journal of Hypertension 2013, 31:1281–1357 (see section 4.2.3)

3. Oscillometric estimation of aortic pulse wave velocity: comparison with intra aortic catheter measurements; Weber T, Hametner B, et al; Blood Press Monit. 2013 Jun;18(3):173-6.