P140: COMPARISON OF DOPPLER AND OSCILLOMETRIC METHODS OF ASSESSING ANKLE-BRACHIAL INDEX IN PATIENTS WITH SYSTEMIC LUPUS ERYTHEMATOSUS

Kwame Yeboah, Mensah Owusu, N.A. Rchard, Dzifa Dey, Vincent Boima, J. Kennedy Cruickshank

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Conclusions: Despite the challenging ultrasound images of the fetal ascending aorta, local PWV measurement has proven to be possible through recordings of diameter and blood velocity. PWV increases with gestational age and it is higher in FGR than normal fetuses. Further studies are needed to determine the potential clinical predictive value of fetus PWV.

References

P139 COMPARISON OF EJECTION DURATIONS DERIVED FROM RADIAL AND BRACHIAL PRESSURE WAVES
Andreas Bauer 1, Bernhard Hametner 1, Thomas Weber 2, Siegfried Wassertheurer 1
1Center for Health & Bioresources, AIT Austrian Institute of Technology, Austria
2Cardiology Department, Klinikum Wels-Grieskirchen, Austria

Purpose: The ejection duration (ED) is an important indicator of ventricular function as well as ventriculo-arterial coupling. Thus, the non-invasive oscillometric determination of ED from arterial pressure waves could enhance methods of pulse wave analysis. The aim of this work was to test and to validate the calculation of ED based on measurements from two different devices (brachial oscillometry and radial tonometry).

Methods: 138 pulse wave measurements from 79 patients were obtained in direct succession with the Mobil-O-Graph (IEM, Germany) and with the Sphymocor device (At Cor Medical Pty. Ltd., Australia) in a comparative study. An algorithm based on numerical derivatives was developed to determine the ejection duration from the arterial pulse wave. For both measurements, the ED was calculated and the ED from the internal algorithm of the Sphymocor was obtained.

Results: The mean ED of the internal Sphymocor algorithm (Sphylint) is 309±27 ms, of the calculated ED from the Mobil-O-Graph measurements (Mob) 304±29 ms of the calculated ED from the Sphymocor recordings (Sphy) 308±30 ms. So, the mean differences between Mob and Sphy are –4±20 ms, see figure, and between Mob and Sphy are –3±26 ms. The sampling rates of Sphymocor and Mobil-O-Graph are 128 respectively 100 Hz, so the mean errors are below the particular step sizes.

Conclusion: The algorithm for calculation of the ED was tested successfully on radial and brachial recordings. As the differences between locations as well as between algorithms are sufficiently small, the determination of ejection duration from brachial oscillometric pulse waves seems feasible.

P140 COMPARISON OF DOPPLER AND OSCILLOMETRIC METHODS OF ASSESSING ANKLE-BRACHIAL INDEX IN PATIENTS WITH SYSTEMIC LUPUS ERYTHEMATOSUS
Kwame Yeboah 1, Mensah Owusu 1,2, N. A. Richard 1, Dzifa Dey 2, Vincent Boima 2, J. Kennedy Cruickshank 1
1Department of Physiology, School of Biomedical & Allied Health Sciences, University of Ghana, Accra, Ghana
2Department of Medicine & Therapeutics, School of Medicine & Dentistry, University of Ghana, Accra, Ghana

Objective: Peripheral arterial disease (PAD) is a common cardiovascular complication in systemic lupus erythematosus (SLE) patients [1]. PAD is objectively diagnosed with ankle-brachial index (ABI), which can be measured by the Doppler method, or oscillometric technique [2]. In Ghanaian SLE patients, we compared the utility of oscillometric ABI to Doppler ABI, which is the ‘gold standard’.

Method: ABI was measured using 8 MHz hand-held Doppler (LifeDop 250, Summit Doppler) and oscillometric technique (Vasera 1500N, Fukuda Denshi) in 80 SLE patients (160 legs). PAD was defined as ABI < 0.9 in at least one leg.

Results: There prevalence of PAD by oscillometric technique was higher than that of Doppler technique (32.5% vs 23.8%, p = 0.004). There was fair level of agreement between PAD by Doppler and oscillometric techniques (κ = 0.36, p = 0.003). Doppler ABI correlated with oscillometric ABI in the right leg (r = 0.34, p = 0.005), but not in the left leg (r = 0.18, p = 0.127). Reliability analysis showed that Doppler-ABI does not agree with oscillometric ABI in both right (intraclass r = 0.23, p = 0.13) and left (intraclass r = 0.31, p = 0.061) legs.

Conclusion: In Ghanaian SLE patients with high prevalence of PAD, measurement of ABI using oscillometric technique does not agree with Doppler-based ABI.

References

P141 COMPARISON BETWEEN TECHNIQUES OF EVALUATION MICROVASCULAR MORPHOLOGY: THE GOLD-STANDARD LOCALLY INVASIVE MICROMYOGRAPHY VS. THREE NON-INVASIVE TECHNIQUES. PRELIMINARY DATA
C. De Ciuceis 1, S. Caletti 1, M. A. Coschignano 1, C. Rossini 1, S. Duse 2, F. Docchio 1, S. Pasinetti 1, F. Zambonardi 1, F. Semeraro 2, G. Sansoni 3, C. Agabiti Rosei 1, P. Pileri 1, E. Agabiti Rosei 1, D. Rizzoni 1,5
1Clinica Medica, Department of Clinical and Experimental Sciences, University of Brescia, Italy
2Chair of Ophthalmology, University of Brescia, Italy
3Department of Mechanical and Industrial Engineering, University of Brescia, Brescia, Italy
4Department of Information Engineering, University of Brescia, Brescia, Italy
5Istituto Clinico Città di Brescia, Division of Medicine, Brescia, Italy

Objective: The gold standard technique of evaluation microvascular morphology in human is generally considered the measure of media to lumen ratio (WLR) of retinal arterioles. A gold standard method of agreement between PAD by Doppler and oscillometric techniques is the ‘gold standard’.

Method: In Ghanaian SLE patients with high prevalence of PAD, measurement of ABI using oscillometric technique does not agree with Doppler-based ABI.

References