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

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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.

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COMPARISON OF EJECTION DURATIONS DERIVED FROM RADIAL AND BRACHIAL PRESSURE WAVES

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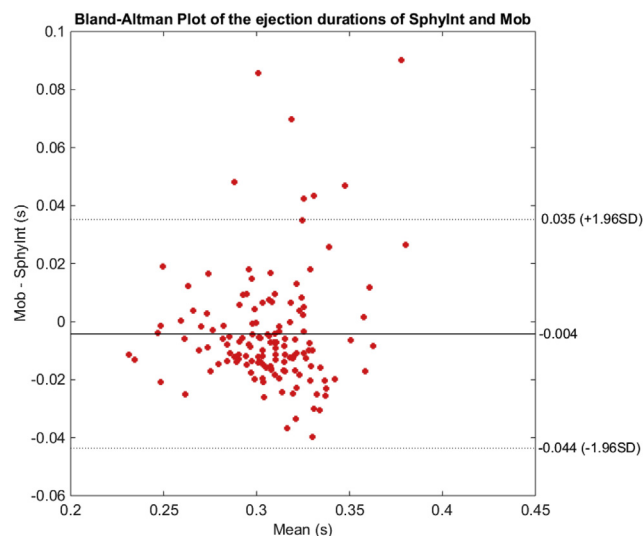
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Purpose: The ejection duration (ED) is an important indicator of ventricular function as well as ventriculo-arterial coupling. Thus, the non-invasive oscillometric determination of ED from arterial pressure waves could enhance methods of pulse wave 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 Sphygmocor 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 Sphygmocor was obtained.

Results: The mean ED of the internal Sphygmocor algorithm (Sphylnt) is 309±27 ms, of the calculated ED from the Mobil-O-graph measurements (Mob) 304±29 ms and of the calculated ED from the Sphygmocor recordings (Sphy) 308±30 ms. So, the mean differences between Mob and Sphylnt are -4±20ms, see figure, and between Mob and Sphy are -3±26ms. The sampling rates of Sphygmocor 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.

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

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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 ($\kappa = 0.36$, $p = 0.003$). 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

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COMPARISON BETWEEN TECHNIQUES OF EVALUATION MICROVASCULAR MORPHOLOGY: THE GOLD-STANDARD LOCALLY INVASIVE MICROMYOGRAPHY VS. THREE NON-INVASIVE TECHNIQUES. PRELIMINARY DATA

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Objective: The gold standard technique of evaluation microvascular morphology in human is generally considered the measure of media to lumen ratio (M/L) of subcutaneous small vessels obtained by local biopsies and evaluated by wire or pressure micromyography. However, non-invasive techniques for the evaluation of retinal arterioles were recently proposed, in particular two approaches seem to provide interesting information: Scanning Laser Doppler Flowmetry (SLDF) and adaptive optics (AO); both of them provide an estimation of the wall to lumen ratio (WLR) of retinal arterioles. A non-invasive measurement of basal and total capillary density may be obtained by videomicroscopy/capillaroscopy. No direct comparison of the non-invasive techniques in the same population was previously performed, in particular AO was never validated against micromyography.