

COMMENTS AND RESPONSES

Automated Ankle-Brachial Pressure Index Measurement by Clinical Staff for Peripheral Arterial Disease Diagnosis in Nondiabetic and Diabetic Patients

Response to Clairotte et al.

Clairotte et al. (1) recently reported in *Diabetes Care* that the oscillometric measurement of the ankle-brachial index (Osc-ABI) has lower diagnostic performance in diagnosing peripheral arterial disease (PAD) in diabetic patients when compared with the Doppler-measured ankle-brachial pressure index (Dop-ABI).

Our group has validated the use of an automatic oscillometer (Omron M-7) for Osc-ABI calculation. We chose this model because the sleeve adapts better to the truncated cone morphology of the leg. We used the Doppler Hadeco Bidop (Koven Technology, St. Louis, MO) to measure the sonorous and graphical signal. For the Osc-ABI calculation, three measurements were made and the greatest of these three was chosen as the valid measurement. We studied 228 consecutive patients with arterial hypertension (62.75 ± 12.3 years [mean age \pm SD], 51.1% men) of which 69 patients (30.3%) presented with type 2 diabetes.

As with the study carried out by Clairotte et al., we achieved good applicability with the Osc-ABI, which was obtainable in 96.2% of the patients. Also in agreement with the results by Clairotte et al., the oscillometer method tended to overestimate the systolic arterial pressure

values; hence, the cutoff point to define a pathological ABI would have to be increased from 0.9 to 1.

However, in contrast to Clairotte et al., we found a better correlation (Pearson test) between the Osc-ABI and the Dop-ABI both in the total population ($r = 0.86$) ($P < 0.001$) as well as in the diabetic subpopulation ($r = 0.88$) ($P < 0.001$) without significant differences between these groups. The interclass correlation coefficient (inter-observant K) in our population was 0.94 (0.96 in the left leg and 0.94 in the right leg).

This discrepancy can be due to the fact that we considered pathological Osc-ABI in those case subjects (17 total case subjects: 8 in the right leg and 9 in the left leg) in which the oscillometer displayed error, unlike Clairotte et al. (1) and other researchers (2–3) who considered these results as invalid.

In all these 17 case subjects, the Dop-ABI was <0.6 and the magnetic resonance angiography confirmed the presence of significant arterial stenosis ($>50\%$) in the inferior members, supporting the idea that the repeated errors of measurement with the Osc-ABI point to the presence of PAD.

It is well known that diabetic patients have greater arterial rigidity (4), which in turn can lead to measurement errors when using the oscillometer method since it is not possible to reach an adequate arterial compression. Therefore, it is probable that Clairotte et al. (1) have underestimated the correlation between the Dop-ABI and the Osc-ABI (5) in their study.

In conclusion, we support the use of the oscillometer method for ABI screening equally in both diabetic and nondiabetic populations. The difficulties in obtaining pressure measurements in legs with the oscillometer, especially in diabetic subjects, should not be interpreted as error in the technique but instead as an indication of the presence of PAD, which would subsequently have to be confirmed with other functional and imaging tests.

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