ASSOCIATION BETWEEN NON-INVASIVE ARTERIAL PULSE VOLUME RECORDINGS AND EXTENT OF CORONARY ARTERY DISEASE

ACC Poster Contributions
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Background: Peripheral arterial disease (PAD) can be identified noninvasively by an abnormal ankle brachial index (ABI) and by plethysmography, or pulse volume recordings (PVR). PVR offers diagnostic utility in calcified vessels for which ABI may not be accurate. While many studies have described the association between ABI and extent of CAD, there are no data examining the association between PVR and CAD or the utility of PVR beyond ABI measurements.

Methods: All patients referred for cardiac catheterization who had an ABI and PVR done between 3/08-6/09 were included (n=231). Extent of CAD was graded by number of vessels involved and both the Duke Myocardial Jeopardy Index and the Gensini Score.

Results: There were no differences in clinical characteristics between patients with a normal or abnormal PVR. Compared to patients with a normal PVR, patients with an abnormal PVR had a higher rate of three vessel CAD (40.0% vs. 26.7%, p=0.04) as well as a higher median Gensini (18.7 vs. 11.3, p=0.03) and Duke scores (2.0 vs. 0.0, p=0.02). 56% of patients with an abnormal PVR had a normal ABI. The mean Duke and Gensini scores across different ABI and PVR scenarios are shown in the figure.

Conclusions: The presence of an abnormal PVR is associated with a greater extent of CAD, but additional information regarding CAD extent is also offered by PVR in patients with a normal ABI and an abnormal PVR. Further studies examining whether PVR may be a more sensitive tool than ABI in predicting extent of CAD are warranted.

Figure 1: Duke and Gensini Scores across different ABI and PVR scenarios