A New Vascular Stiffness Index, Arterial Velocity Pulse Index Predicts Coronary and Aortic Calcification

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Background : Blood pressure monitoring system (PASESA®) provides faster, easier and non-invasive measurement of central and peripheral vascular stiffness, compered with conventional methods. Some studies show that arterial velocity pulse index (AVI) and arterial pressure volume index (API) reflect the central, peripheral arterial stiffness respectively. The aim of this study was to assess whether those new index could predict the presence or severity of coronary and aortic root calcification.

Methods : From Jan 2015 to Aug 2015, 207 consecutive patients who had suspected coronary artery disease were evaluated by coronary artery computed tomography. AVI and API were measured using PASESA®. The presence and severity of calcification were assessed by coronary artery calcium score (CACS) and aortic root calcium volume. (HeartBeat-CS, Philips, Amsterdam)

Results : Significant positive correlations were observed between AVI and CACS (r=0.29, p<0.001), AVI and aortic root calcium volume (r=0.33, p<0.001). Multivariate regression analysis showed that AVI was an independent predictor for the presence and severity of aortic root calcification (p=0.006).

Conclusion : A new vascular stiffness index, AVI could predict coronary and aortic root calcification.