Surface QRS Duration Correlate Better than SAECG with Time To Peak Speckle Tracking

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Introduction: Speckle tracking has been increasingly used to analyse LV function. With this modality, Global Longitudinal Strain (GLS) has emerged as a new sensitive diagnostic tool for evaluating early LV systolic dysfunction. The other advantage of speckle tracking can be used to evaluate LV desynchronization using Time To Peak (TTP). Electrocardiography, on the other hand, gave an electrical snapshot of the heart. Recently, SAECG had been shown to be able to predict very late potentials of ventricle that correspond to a slow conduction within the ventricle. However, these two methods need trained personals and specialized software.

Methods: 125 elderly (>60 years old) patients with CAD was simultaneously evaluated with Echocardiography and SAECG. All patients aged >60-year-old, EF >50%, no moderate-severe valve abnormalities, no COPD, and no CKD. The GLS and TTP was achieved using Philips Epic 7. And then grouped as total 17 segments as recommended by AHA, and then grouped by coronary vessels (LAD, LCX, RCA) (Figure 1A), and anatomical segments (basal, mid, apical). (Figure 1B) SAECG was recorded using Vasomedical-Biox Holter and 40 Hz filter. The results was then correlated with GLS and TTP.

Result: QRS duration have weak correlation with TTP strain, but not with GLS. SAECG did not have any correlation with strain result, either GLS or TTP.

Conclusion: Standard QRS duration has weak correlation to time to peak strain analysis of total (17 segments), RCA segments (segment 3, 4, 9, 10, 15), basal segments (segment 1-6), and mid segments (segment 7-12). Standard QRS duration did not correlate with GLS. SAECG does not correlate well with GLS or TTP by speckle tracing in our sample.