

EP09.36 Assessment of inter- and intraobserver variability in the evaluation of myocardial strain using speckle tracking echocardiography

Jakub Mlodawski^{1,2}, Anna Zmelonek-Znamiorska^{1,2}, Lukasz Pawlik³, Marta Mlodawska^{1,2}, Grzegorz Swiercz^{1,2}

- 1. Jan Kochanowski University in Kielce, Poland.
- 2. Provincial Combined Hospital in Kielce, Kielce, Poland.
- 3. Kielce University of Technology, Kielce, Poland

Objectives: The study aimed to assess inter- and intraobserver variability in the measurement of fetal myocardial strain in the second trimester, using speckle tracking echocardiography (*FetalHQ* software).

Methods: The study included women participating in mid-trimester screening at the in Provincial Complex Hospital in Kielce. For 20 patients, cine-loop clips of the four-chamber view (4CV) of the heart, each lasting 7 seconds, were analyzed independently by two operators using speckle tracking echocardiography (STE) and *FetalHQ* software. In an additional 38 patients, the same operator repeated the analysis after a few days. Intraclass correlation coefficients (ICC) with 95% confidence intervals (95% CI) were calculated for measurements by the two operators, as well as for repeated measurements by a single operator, across various parameters of myocardial strain, including global longitudinal strain (GLS), free wall strain (FWS), and septal wall strain (SWS) for both the right (RV) and left ventricle (LV).

Results: The ICC results for reproducibility are presented in Table 1. A notably low reproducibility was observed in measurements between the two sonographers, as well as single sonographer. Slightly higher values were observed for the left ventricle. None of the measured parameters were statistically significant, with confidence intervals encompassing the 0.5 threshold.

Conclusions: The assessment of myocardial strain in the second trimester using speckle tracking analysis with *FetalHQ* software is characterized by low reproducibility.

Results of the repeatability and reproducibility assessment for individual parameters (explanation of abbreviations in the text).

parameter	Intraobserver variability (ICC)	95% CI	Interobserver variability (ICC)	95% CI
LV GLS	0,3	0,21 - 0,42	0,5	0,21 - 0,7
RV GLS	0,23	0,15 - 0,58	0,28	0,05 - 0,55
LV FWA	0,08	0,02 - 0,25	0,45	0,16-0,67
RV FWS	0,3	0,1 - 0,63	0,31	0,01 - 0,51
LV SWS	0,13	0,09 - 0,48	0,41	0,11 - 0,65
RV SWS	0,17	0,10 - 0,45	0,50	0,22 - 0,71