Abstract: **P1474**

**Simpsons Triplane versus Biplane for left ventricle ejection fraction after myocardial infarction**

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**Topic(s):**
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**Introduction:** Simpson's biplane (SBP) ignores the apical long-axis plane. It is estimated that 40% of myocardial infarction (MI)-related segmental abnormalities are located in this plane. The real-time triplane (RT3P) overcomes this issue, allowing to obtain all apical views simultaneously, at the same cardiac cycle. This method could be a more precise and reliable alternative to SBP in ejection fraction (EF) quantification in this setting.

**Purpose:** The authors aimed to compare EF assessed by two quantification methods, SBP and RT3P, using quantitative three-dimensional echocardiography (3DE) as the reference method, in patients with MI.

**Methods:** We have prospectively gathered data from 52 adult patients, which had recent or past history of MI. Exclusion criteria were the presence of atrial fibrillation, unknown coronary anatomy, significant valvular disease, left branch block, ventricular pacing and poor definition of endocardial borders.

Estimation of EF by SBP, RT3P and 3DE was performed in all patients and gathered by two experienced operators. The two operators were blinded for the coronary angiography results before volume quantification. They were also blinded for their own measurements, as well as for the other operator's measurements.

Spearman's correlation and linear regression were performed for correlation analysis. Bland-Altman plot was used for agreement assessment among the different methods. Interobserver agreement was assessed by Cohen's kappa.

**Results:** Patient characteristics are shown in table 1. EF calculation was feasible in all patients.

There were excellent correlations between EF measured by SBP vs 3DE and RT3P vs 3DE (r=0.813 and r=0.9 respectively).

Test of equality between two correlation coefficients confirmed that EF by RT3P method is significantly more correlated with the reference method, compared with EF by SBP (p=0.004).

We have also performed a further analysis to study this results in special subsets. In anterior MI subset, EF by RT3P correlated by 0.909 with 3DE, versus 0.826 from EF by SBP (p=0.019). In inferior MI subset, EF by RT3P correlated by 0.779 with the reference method, versus 0.706 from EF by SBP (p=0.246).

**Conclusions:** Estimation of EF using SBP and RT3P methods by experienced operators strongly correlate with EF determined by 3DE. The RT3P method showed the strongest correlation between the two methods, which may point to its usefulness in the evaluation of EF in patients with anterior wall motion abnormalities after myocardial infarction.
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Fig 1 Correlation and Bland-Altman plot