PPVs of 320-slice CTA for each artery were investigated (Fig. 1A). PPVs varied from 0.53 to 0.95 in all coronary arteries. However, they were much higher in the main branches of coronary artery (0.87–0.95 for LAD_{1-3}, 0.85–0.91 for RCA_{1-3} and 0.83–0.90 for LCX_{1-3}) than the other small branches (0.53 for PDA, 0.57–0.65 for D1 ~2 and 0.60–0.71 for OM1 ~2).

The outcomes of 320-slice coronary CTA with respective to multiple confounders were summarized in Table 1 and Fig. 1B. When compared to the cases with good-to-moderate image quality, wall calcification and atrial fibrillation, higher AUCs and kappa indexes ($\kappa \geq 0.8$, indicating excellent agreement between CTA and ICA) were observed in cases with excellent image quality, non-calcification and normal sinus rhythm. Meanwhile, Pearson Chi-square test showed that more true cases and less false cases were observed in segments with excellent image quality, non-calcification and normal sinus rhythm, than those with excellent ($p < 0.001$) to good ($p = 0.029$) image quality, mild-moderate ($p < 0.001$) to heavy ($p < 0.001$) calcification, and atrial fibrillation ($p = 0.036$), respectively. With respect to different pretest likelihoods and diagnostic radiologists, similar AUCs and kappa indexes were observed in all groups, and no significant differences of the true-case frequency and false-case frequency were observed among all groups. As showed at Fig. 1B, PPVs decreased in the order of excellent–good–moderate image quality. Higher PPVs could be obtained in cases with non-calcification, mild-moderate calcification and normal sinus rhythm, when compared to those with heavy calcification and atrial fibrillation. Similar PPVs were observed in cases with different pretest likelihoods and diagnostic radiologists.

The present retrospective study was a large sample study indicating that PPVs of CTA varied a lot with respect to multiple confounders in clinical routine. Among all potential confounders, large vessel diameter, excellent image quality, non-heavy calcified plaques and normal sinus rhythm might contribute to get a higher PPV.

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Left atrial regional phasic strain, strain rate and velocity by speckle-tracking echocardiography: normal values and effects of aging in a large group of normal subjects — Our reply

Roxana Cristina Rimbaş [a,*], Dragoş Vinereanu [a,b]

[a] *University and Emergency Hospital, Bucharest, Romania*
[b] *University of Medicine and Pharmacy Carol Davila, Bucharest, Romania*

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We have read with interest the paper by Sun et al. [1] recently published in International Journal of Cardiology, regarding the evaluation of left atrial (LA) phasic functions, by speckle-tracking echocardiography (STE), in a large group of normal subjects. This study reported the normal values of LA phasic functions, assessed by 2D STE, in the largest sample size.

Global longitudinal LA strain (S) and strain rate (SR) parameters determined by STE were demonstrated to be feasible and reproducible indices for the evaluation of LA functions [2–4].

Sun et al. [1] described all components of LA function: the contractile, reservoir, and conduit phases during the cardiac cycle. However, the LA STE curves were obtained using R-wave from the electrocardiogram as a reference point, which enabled in their opinion the generation of first positive peak, second positive peak, corresponding to LA reservoir, contractile, and conduit function as a difference between the first and the second peak, respectively.

The LA S/SR curves are opposite to LV strain. The atria and ventricles move in opposite directions during the cardiac cycle, so the atrial myocardium lengthens during ventricular systole (positive strain), while the ventricular myocardium shortens during ventricular systole (negative strain). The strain curve must closely follow LA physiology. During the phase of LA reservoir (corresponding to the LV isovolumic contraction, ejection, and isovolumic relaxation), LA strain increases, achieving the highest peak just before mitral valve opening. During the conduit phase LA strain decreases, and achieves a negative peak at the end of LA contraction. Subsequently, during the diastasis both the S/SR profiles are flat, demonstrating that no LA wall deformation occurs in the late phase of the conduit period [2,3,5,6].

In this way we believe that LA contraction, reservoir, and also conduit functions are not as Sun et al. noted in Fig. 1 of their manuscript. In agreement with other authors [2,4] we believe that the contraction is represented in the LA strain curves as a negative peak (GSA−), the

* Corresponding author. Tel./fax: +40 213180576.
E-mail address: roxanasisu@gmail.com (R.C. Rimbaş).

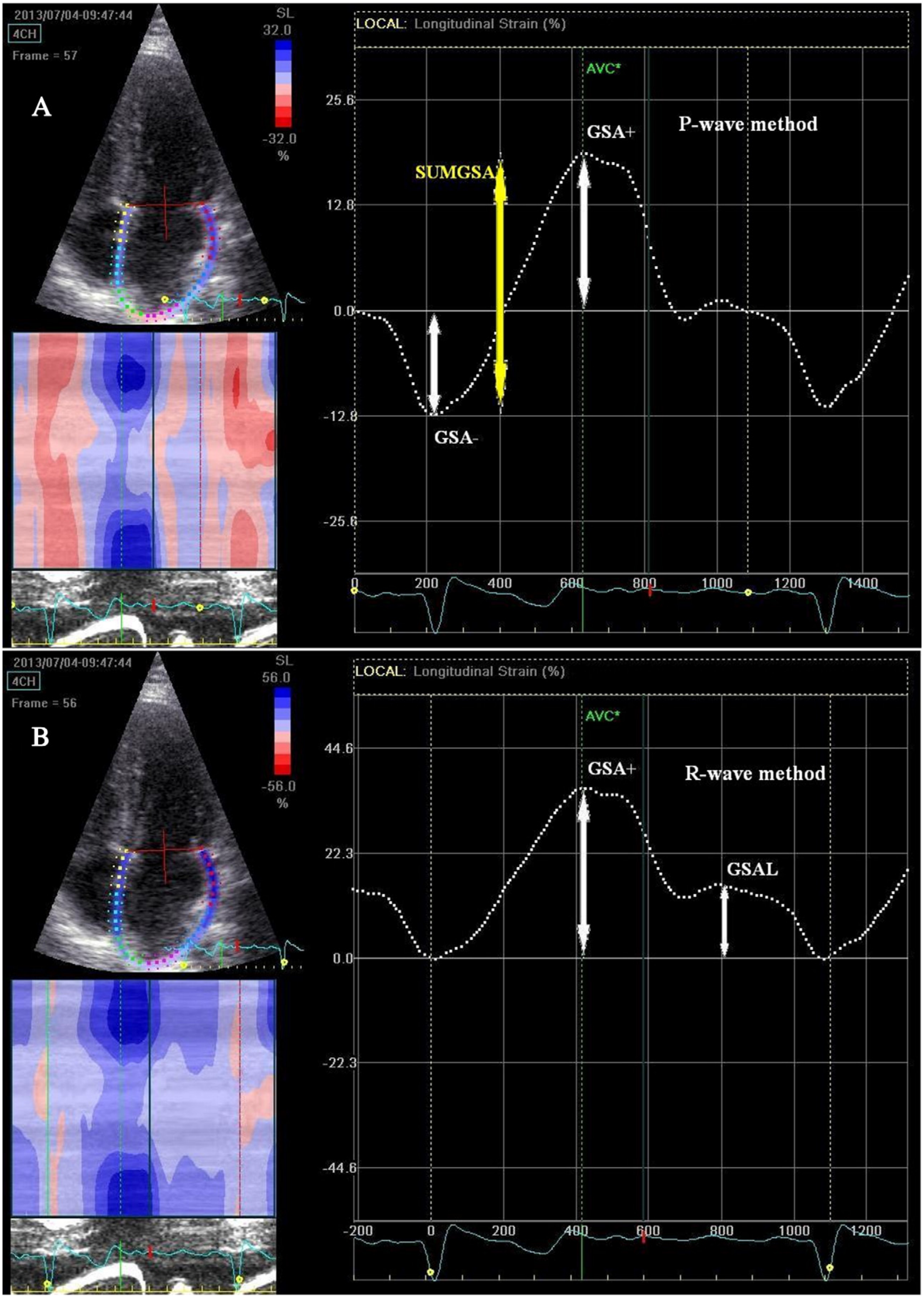

Fig. 1. Comparison between R-wave and P-wave methods, for generation of atrial strain curves.Panel A. The reference point was placed at the P-wave, allowing measurement of the negative global strain at maximal atrial contraction (GSA−) (pump function), first positive global strain at aortic valve closure (GSA+) (conduit function), and also sum of GSA− and GSA + (SUMGSA) (reservoir function);Panel B. The reference point was placed at the R-wave, allowing measurement of the first positive global strain at aortic valve closure (GSA+), and late positive global strain (GSAL). There was no negative pump function with this method.

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