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Differentiation Left Side Ventricular Septum from Right Side in Acute Anterior Myocardial Infarction by Using Tissue Doppler Imaging

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Background ; The ventricular septum has been known to be a morphologically and functionally bilayered structure. The infarcted ventricular septum occluded LAD can provide the opportunity to differentiate left side septum (LS) from right side (RS). **Methods** : The study subjects were consisted of 12 patients with acute anterior ST segment elevation myocardial infarction (AMI) which confirmed coronary angiography and 12 age-matched normal subjects. Tissue velocity (TV), strain (S) and strain rate (SR) values were obtained from LS and RS (right side of bright ventricular septal line) in color-coded tissue Doppler imaging. The longitudinal function was assessed from the apical 4-chamber view and radial function from parasternal long-axis or short-axis view. **Results** : In normals, there were no significant differences of all longitudinal parameters between LS and RS. The amplitude of radial systolic TV was larger in LS than RS ($p=0.005$) but systolic SR and S were similar ($p=0.89$ and 0.25 , respectively). In AMI, longitudinal systolic TV was similarly decreased in both sides. However, the longitudinal and radial SR and S were significantly lower in LS than RS ($p < 0.001$ in all) and those of RS were well preserved as those of normal controls. **Conclusion** : The results showed the complexity of ventricular septum and SR imaging differentiated LS from RS better than TV imaging which might be due to tethering effect each other. Therefore, we should be careful in assessing ventricular myocardial velocities in specific conditions like as infarcted ventricular septum with tissue Doppler imaging.

		Normal controls			Patients with acute anterior MI		
Longitudinal		LV side	RV side	p	LV side	RV side	p
	TV (m/s)	3.7±0.8	3.9±1.2	0.40	3.0±1.5	3.2±1.7	0.10
	SR (1/s)	-1.2±0.2	-1.1±0.2	0.19	-0.4±0.1	-1.3±0.3	<0.001
	S (%)	-19.1±3.5	-17.1±2.4	0.16	-3.9±2.6	-17.7±2.5	<0.001
Rdial							
	TV (m/s)	-3.9±1.5	-3.3±1.5	0.005	-3.3±2.4	-3.2±2.1	0.95
	SR (1/s)	1.6±0.5	-1.7±0.8	0.89	-0.3±0.1	-1.4±0.2	<0.001
	S (%)	23.9±6.2	-21.7±8.2	0.25	-3.9±3.4	-20.2±2.9	<0.001