SUMMARY

In nearly all patients, valvular mitral stenosis (MS) is caused by rheumatic involvement of mitral valve. Echocardiography is the gold standard method for evaluating MS. Two-dimensional echocardiographic (2D) planimetry of the mitral valve orifice and pressure half-time (PHT) are the two most commonly used methods to estimate mitral valve orifice area. These two methods have an excellent concordance and, in most cases, can be used interchangeably. Several studies have demonstrated that current echocardiographic techniques for estimating valve area in mitral stenosis have important limitations.

Therefore, a simple and accurate method for the assessment of MS severity is desirable. The mitral leaflet separation (MLS) index, measuring the distance between the tips of the mitral leaflets in para-sternal long-axis and four-chamber views was recently presented as a reliable measure of MS severity and as a surrogate for MVA.

the aim of this study is to evaluate the Mitral leaflets separation Index (MLS) as a measurement for Mitral stenosis severity.

we studied 50 patients with rheumatic MS, as diagnosed by clinical presentation, and conventional Echocardiography .They were recruited from The Echocardiographic unit in The cardiology department at Cairo University (Kasr El-Ainy) hospital , and EL-Fayoum university hospital.

The patients were classified into two groups.(Group I) 25 patients with rheumatic mitral stenosis and sinus rhythm,(Group II) 25 patients with rheumatic mitral stenosis and atrial fibrillation.

The exclusion criteria were patients with heavily calcified mitral valve, severe concomitant mitral regurgitation, severe aortic valve disease, prior mitral commisurotomy in the preceding 6 months and a suboptimal acoustic window.

All patients were subjected to complete Transthoracic Echo Doppler study. Mitral stenosis severity was assessed using 2D MVA Planimetry method,MVA(PHT method), peak and mean gradient on the mitral valve,and MLS index.

MLS index was compared with MVA assessed by planimetry and PHT methods, and peak and mean gradient on the mitral valve.

We found that there is a good significant correlation between MLS index (PLAX view) and (A4C view) and MVA(Planimetry method) and MVA (PHTmethod),and weak but significant correlation with Peak and Mean gradient on the mitral valve.

ROC curve analysis in Group I demonstrate that MLS (PLX view) 8.05 mm or less had a 82% sensitivity and 100% specificity ,and MLS (A4C view) 7.9 mm or less had a 82% sensitivity and 86% specificity for predicting severe MS by Planimetry method. MLS (PLX view) 8.25 mm or less had a 85% sensitivity and 100% specificity , and MLS (A4C view) 8.25 mm had a 81% sensitivity and 100% specificity for predicting severe MS by PHT method.

ROC curve in Group II demonstrate that MLS (PLX view) 7.25 mm or less had a 89% sensitivity and 90% specificity ,and MLS (A4C view) 7.65 mm or less had a 89% sensitivity and 100% specificity for predicting severe MS by Planimetry method. MLS (PLX view) 7.75 mm or less had a 84% sensitivity and 100% specificity,and MLS (A4C view) 7.9 mm or less had a 84% sensitivity and 100% specificity for predicting severe MS by PHT method.

We attempted to find a new equation by which MVA could be calculated using MLS index.

Finally,the study showed that MLS index is an easy, accurate and reliable measure to estimate severity of MS, it provides a quick estimate of MS severity from standard 2D echocardiographic views without having to resort to tedious measurements. Thus, MLS index can be used as useful supplement to the existing method for assessment of MVA and

probably help when there is a discrepancy between severities of MS estimated by existing methods.