Usefulness of 2-Dimensional Mitral Valve Leaflets Separation Index as a New Technique for Assessment of Mitral Stenosis Severity: Comparison with Planimetry and PHT Methods

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Abstract::

Objective: To determine the usefulness of 2-Dimensional mitral valve leaflets separation index as a new technique for assessment of mitral stenosis severity. ***Patients and Methods:*** Our study included 55 patients with mitral stenosis who had undergone echocardiographic examination from July 2008 to March 2009 at Fayoum University hospital. Maximum separation of mitral leaflet tips in diastole in parasternal long-axis and apical 4-chamber views was measured and averaged to yield the mitral leaflet separation index. The index was compared with mitral valve area determined by planimetry and pressures half-time methods. ***Results:*** Of the 55 study subjects, Eighteen patients had mild mitral stenosis (MVA 2.26±0.42cm2 by PHT and 2.19±0.43cm2 by planimetry), 20 patients had moderate mitral stenosis (MVA 1.30±0.12cm2 by PHT and 1.20±0.09cm2 by planimetry) and 17 patients had severe mitral stenosis (MVA 0.90±0.09cm2 by PHT and 0.84±0.10cm2 by planimetry). A MLS index of 0.975cm or more identified mild MS with 94.4% sensitivity, 78.4% specificity, 68% PPV, 96.7% NPV and 83.6% total accuracy, MLS index of 1.025cm or more identified mild MS with 88.9% sensitivity, 94.6% specificity, 88.9% PPV, 94.6% NPV and 92.7% total accuracy, and MLS index of 1.225cm or more identified mild MS with 83.3% sensitivity, 97.3% specificity, 93.8% PPV, 92.3% NPV and 92.7% total accuracy. On the other hand, MLS index of 0.775cm or less identified severe MS with 88.2% sensitivity, 100% specificity, 100% PPV, 95% NPV and 96.4% total accuracy, and MLS index of 0.925cm or less identified severe MS with 94.1% sensitivity ,76.3% specificity, 64% PPV, 96.7% NPV and 81.8% total accuracy. ***Conclusions:*** The 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.