Diagnostic Value of Flouroscopy versus Echocardiography in the Assessment of Mitral Valve Calcification, a Philippine Heart Center Experience

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Background --- Echocardiography is the cornerstone of the diagnostic assessment of patients with mitral valve calcifications. With progressive thickening and fibrosis of the leaflets, the orifice becomes fixed and can then often be imaged directly and measured. Two-dimensional echocardiography also provides information on the pliability of the leaflets, the extent of valvular calcification, thickening of the subvalvular apparatus, and fusion and retraction of the chordae tendinae, as well as calcification of the mitral annulus. The two-dimensional echocardiogram is helpful in determining whether the patient with MS is a suitable candidate for balloon mitral valvuloplasty or replacement.2 With radiography, valve calcification is pathognomonic of significant valve disease. Calcification, if present, is much more easily seen with fluoroscopy. Despite the decreased resolution of fluoroscopy compared with a standard chest radiograph, real-time visualization facilitates definition of calcification.

Methods: This is a cross-sectional study done at PHC from January 2007 to October 2008, involving adult patients candidate for mitral valve replacement (MVR). Patients diagnosed with mitral valve diseases were subjected to fluoroscopy prior to surgery. The excised mitral valves were sent for histopathology. Mitral valve calcifications were graded as absent (0) mild (1) moderate (2) and severe (3) Kruskall-Wallis Anova was then used to test agreement between echocardiography and histopathology, and fluoroscopy and histopathology. Using Kappa coefficient calculation, agreement between echocardiography and fluoroscopy were then compared.

Results --- A total of 49 subjects were enrolled. Forty two (42) subjects for mitral valve replacement were subjected to fluoroscopy. 64.3% were female and 35.7% were male. Age ranged from 21 years old to 66 years old. All patients underwent mitral valve replacement. Based on preoperative (TTE), one (2.4%) did not have calcification. Three (7.1%) had mild mitral valve calcification. Thirty (71.4%) patients had moderate mitral valve calcification on TTE. The rest of the patients (19%) had their mitral valve calcification assessed as severe. Although the correlation coefficient of fluoroscopy as compared to echocardiography is higher by 10%, correlating the two diagnostic modalities with histopathology yields no significant difference at p-value of 1.00.

Conclusions --- This study concludes that there is no significant difference in the ability of fluoroscopy as compared to echocardiography, in detecting the severity of mitral valve calcification. ***Phil Heart Center J 2012; 16:75.***