A hitherto study of relationship between left atrial volume and pressure in echocardiogram and length of left atrial branch of left circumflex artery in rheumatic heart disease

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Background and objective: To study whether there is a relationship between left atrial volume and pressure in echocardiogram and the length of left atrial branch of LCX in coronary angiogram in patients with RHD.

Materials and methods: In our observational study of 52 patients with rheumatic heart disease planned for valve replacement for whom preoperative coronary angiogram was done was observed over a period of 2 years from June 2013 to May 2015. Left atrial indexed volume was calculated by area biplane method and left atrial pressure was estimated by echocardiogram using the formula IVRT/T(E-Ea). Length of atrial branch of LCX was measured in coronary angiogram.

Inclusion criteria: (1) age 40–60 years; (2) patients of rheumatic heart disease with moderate to severe lesion planned for valve replacement in sinus rhythm for whom perioperative CAG was done. Exclusion criteria: (1) Hypertension; (2) Coronary artery disease; (3) Atrial fibrillation.

Results: Totally 52 patients of rheumatic heart disease were studied of which 31 cases were females (60%) and 21 were males (40%). Mean age was 50 ± 10 years. The indexed LA volume was highest for mitral stenosis patients with a mean of 67.7, followed by patients with MS/MR of 50.7, and MR patients of 44.7, and then AS/AR of 33.08. The LA pressure/PCWP was categorized as < 15 of which maximum number of patients were those with MS/MR followed by those with MS. The Left atrial branch length ranged from 4.0 to 18.3 cm. On further analysis of the length it was found that 73% of MS patients had a length of >15 cm, 52% of patients with MS/MR had a length between 10 and 15 cm, 73% of MR patients had a length between 5 and 10 cm and 80% of AS/AR patients had a length <5 cm.

RHD patients  Indexed LA volume  Left atrial branch length
MS  67.7  >15 cm (73%)
MS/MR  50.7  10–15 cm (52%)
MR  44.7  5–10 cm (73%)
AS/AR  33.0  <5 cm (80%)

Conclusion: From the above analysis it is found that left atrial indexed volume was highest in patients with MS followed by patients with MS/MR, MR and AS/AR. Also the left atrial branch length seems to be higher in the same order. Thus there seems to be a direct relation between the Left atrial branch size and the left atrial volume. Also there seems to be a relation between left atrial pressure and left atrial branch size which however could not be concluded and needs further studies with catheterization for quantification of left atrial pressure.

3 dimensional echocardiographic evaluation of prosthetic valve dysfunction

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Background: Echocardiography (Echo) with Doppler is method of choice for noninvasive evaluation of prosthetic valve function. Three-dimensional (3D) imaging and 3D transesophageal echocardiography (TEE) images enabled visualization of valvular anatomy from unique orientations with improved spatial relationships not previously seen with two-dimensional (2D) Echo. In particular, real-time three-dimensional (RT3D) TEE has allowed improved visualization and assessment of prosthetic valves.

Methods: Patient who fulfill the criteria will undergo detailed evaluation of prosthetic valve dysfunction. All patients having prosthetic valve dysfunction with stable hemodynamic are included and 3D Echo findings are compared with 2D Echo.

Results: 10 males (28.6%) and 25 females (71.4%) are evaluated in study. Out of 25 female patients, 2 had bioprosthetic mitral valve. Out of 10 male patients, 1 bioprosthetic mitral valve. Out of 35, 5 patients (3 male and 2 female) had tilting disc mechanical prosthetic valve. 21 Female and 06 Male had bileaflet mechanical prosthetic valve. Motion of leaflets was seen abnormal in 7 (70%) male patients and 21 (84%) female patients by 3D Echo compared to 2D Echo. 3D Echo was shown abnormal motion of leaflets in 6 female and 1 male patient which was not seen on 2D Echo.

Youngest reported case of juvenile mitral stenosis

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Mitral stenosis (MS) is a condition characterised by structural abnormality of the mitral valve apparatus that results in obstruction to left ventricular inflow. Isolated severe rheumatic mitral