New Method for Assessment of Left Atrial Appendage Dimensions by Transesophageal 3D Echocardiography

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Introduction: left atrial appendage (LAA) is the source of thrombi in more than 90% of patients with non-valvular atrial fibrillation (AF). Percutaneous Closure of the LAA has been proven to be an alternative strategy to chronic warfarin therapy for stroke prophylaxis in patients with non-valvular AF. Measuring the LAA dimensions became a key guiding stage before introducing percutaneous LAA closure device. The aim of the study was to compare the 3 and 2 Dimensional Real Time Transesophageal Echocardiography (RT3DTEE, RT2DTEE) in the measurement of the LAA dimensions.
Patients and Methods: We prospectively studied 49 consecutive patients (23/26 M/F) that underwent TEE in our center between July to October 2011 using IE33 3D Echo machine (BORTHEL Phillips).The following LAA variables were measured: Diameters of the LAA orifice were compared by RT2DTEE: 0o, 45o, 90o and 135o and by rotating RT3DTEE for the maximal LAA diameter and depth.
Results: Using the rotating 360 degrees RT3DTEE method revealed larger LAA diameter comparing to the largest 135o RT2DTEE (1.87 ± 0.6 cm, vs. 1.74 ± 0.3 $p<0.05$). In 23% of the cases the 135o which is the recommended angle for evaluation the maximal LAA orifice diameter was not the angel with maximal orifice diameter. No change was found in between the RT3DTEE and the RT2DTEE in the LAA depth (2.61 ± 0.6 vs. 2.54 ± 0.4 cm, p=NS).
Conclusions: Using the rotating RT3DTEE method significant larger diameter of LAA orifice diameter were provided in 23% of the cases. The rotating RT3DTEE method seems to be a more accurate method to measure the largest LAA diameter orifice and may facilitate the LAA closure procedure by choosing the appropriate closing device size. More studies are needed for evaluating this subject.