Early and Late Re-Opening After Placement of the Lariat Apparage Closure Device: Clinical Implications

Background: Thromboembolic events represent one of the most serious complications of atrial fibrillation (AF). Left atrial appendage (LAA) clots are the dominant cause of such events in AF patients. Therefore, LAA closure devices have been developed. We sought to evaluate the follow-up and management of early and late re-openings of the LAA after LARIAT endo-epicardial ligation.

Methods: This was a retrospective, multicenter study of consecutive patients undergoing LAA ligation with LARIAT device for stroke prevention in AF. At implant, successful ligation was defined as LARIAT deployment with 5 mm at the 6 and 12 months follow-up, respectively.

Results: A total of 99 patients were enrolled at 4 institutions. There were no peri-procedural deaths or strokes and the rate of major bleeding was 9.3%. In 1 patient the device could not be deployed because of an unfavorable anatomy. Out of the 98 LARIAT cases, 2D TEE complete follow-up was available in all patients. In 93 patients no acute leak was measured, while a small leak (< 5 mm) was detected in 5 patients at implant. At the 6 months follow-up, 3 of the 5 patients with a small acute leak showed no residual leak, and in the remaining 2 cases the leak was stable. Out of the 93 patients with no leak at implant, 81 had no leak at the 6 months follow-up, while 8 had a leak 5 mm (up to 1 cm, in 1 case). At the 12 months follow-up, 1 more patient developed a leak > 5 mm and 4 more patients a leak < 5 mm. 2 patients of the latter group developed a neurological event (1 stroke and 1 transient ischemic attack). Interestingly, in 3 out of 5 patients with late re-openings such leak was missed by the standard 2D TEE evaluation, and it was evident only with the aid of 3D TEE.

Conclusion: Our registry showed that 22.4% of patients have various degrees of LAA leak after the LARIAT procedure and this could occur even after 6 months from the implant. Even small leaks (< 5 mm) can lead to neurological events. 3D TEE appears more sensitive in detecting small re-openings and should be considered for standard screening.