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Predictors and clinical impact of bleeding events after left atrial appendage closure in patients with high risk or a history of bleeding

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Background: Left atrial appendage closure (LAAC) has emerged as an alternative to oral anticoagulation (OAC) for stroke prevention in patients with atrial fibrillation and may be especially attractive in patients with high risk or a history of bleeding. However, data of clinical benefit and incidence of post-procedural bleeding in patients with both high risk of bleeding and ischemic cerebral stroke after LAAC are lacking.

Objectives: This study sought to identify predictors and the prognostic impact of post-LAAC bleeding in patients at high risk and/or history of bleeding in the direct oral anticoagulant therapy (DOAC) era.

Methods and results: We retrospectively enrolled a total of 195 patients (75 ± 8.7 years, 38% female, 47% with previous major bleeding, mean CHA2DS2-VASc score 4.3 ± 1.6 and mean HAS-BLED score 2.7 ± 1.1) undergoing endocardial (91%) or epicardial (9%) LAAC during a mean follow-up of 339 ± 319 days. Twenty-three (11.9%) patients developed procedure-unrelated bleeding events after a median of 147 (43, 362) days after LAAC, in 12/23 (52%) patients under single antiplatelet therapy (SAPT), 6/23 (26%) dual antiplatelet therapy (DAPT), 1/23 (4%) DOAC, 1/23 (4%) VKA, 2/23 (9%) dual therapy (SAPT and DOAC/VKA) and 1/23 (4%) triple therapy (DAPT and DOAC/VKA). (Figure) Diabetes mellitus and previous major bleeding were identified as the independent predictors of post-LAAC bleeding (Odds ratio 2.65 [95% CI:1.04-6.73], p = 0.041, and 5.50 [95% confidence interval:1.72-17.5], p = 0.004). Post-LAAC bleeding was associated with all-cause death (9/23 [39%] vs 18/171 [11%], p = 0.001), but not ischemic stroke/TIA (1/23 [4%] vs 6/171 [4%], p = 0.593) nor device thrombus (2/23 [9%] vs 3/171 [2%], p = 0.108). Kaplan-Meier curve estimated that patients with post-LAAC bleeding had a worse mortality than those without post-LAAC bleeding (3-year mortality; 35.6% [95%CI; 11.6-61.0%] vs 68.7% [45.0-83.8], p = 0.029)

Conclusions: In AF patients with high bleeding risk or history of bleeding undergoing LAAC, bleeding events are common and may occur even after long-term duration after LAAC. Previous major bleeding history strongly predicts subsequent bleeding events following LAAC and is associated with unfavorable mortality. Further investigations are required to identify optimal post-procedural antithrombotic strategies for patients undergoing LAAC with previous major bleeding.

Abstract Figure. The association between time to bleeding