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Cerebral thromboembolic risk in atrial fibrillation ablation: a direct comparison of vitamin K antagonists versus non-vitamin K-dependent oral anticoagulants

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Aims: Cerebral thromboembolic events are well-known complications of pulmonary vein isolation (PVI) and can manifest as stroke or silent cerebral embolic lesions. Over the last years, the preferred oral anticoagulation in atrial fibrillation (AF) shifted from vitamin K antagonists (VKA) to non-vitamin K-dependent oral anticoagulants (NOAC). The aim of this study was to compare the incidence of cerebral embolic lesions after AF ablation in patients on VKA versus patients on NOAC, and to identify corresponding clinical and procedural risk factors.

Methods: A total of 421 patients undergoing PVI (by radiofrequency catheter or cryoballoon) were prospectively included into the study. Of these, 43.7% were on VKA and 56.3% on NOAC treatment. In the NOAC group 38% of patients had an interruption of anticoagulation for 24-36 hours. All patients underwent pre- and postprocedural cerebral magnetic resonance imaging.

Results: Periprocedural cerebral lesions occurred in 13.1% overall. Of these, three (0.7%) resulted in symptomatic cerebrovascular accidents. Incidence of cerebral lesions was significantly higher in patients on NOAC compared to VKA (16% vs. 9.2% respectively, p = 0.04), as well as in patients that had intraprocedural cardioversions compared to no cardivoersions (19.5% vs. 10.4% respectively, p = 0.03). In multivariate analysis both parameters were found to be independent risk factors for cerebral embolism. No significant difference between interrupted and uninterrupted NOAC administration could be detected.

Conclusions: In patients undergoing AF ablation, we identified the use of NOAC and intraprocedural cardioversion as independent risk factors for the occurrence of periprocedural cerebral embolic lesions.

Abstract Figure. Incidence of cerebral embolic lesions