Changes in cognitive function in patients with versus without occlusion of the left atrial appendage: Results from a pilot study

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**Introduction:** Left atrial appendage occlusion (LAAO) is an established cardiac intervention to reduce the risk of stroke in patients with atrial fibrillation (AF). Cerebral thromboembolic (TE) events as well as micro bleeds in patients on oral anticoagulation (OAC) can increase the risk of cognitive dysfunction. We compared the cognitive status in AF patients undergoing LAAO or remaining on OAC after AF ablation.

**Methods:** Cognition was assessed by the Montreal Cognitive Assessment (MoCA) survey. Consecutive patients receiving LAAO or continuing on OAC after AF ablation were screened and those with a baseline MoCA score were included in the analysis. MoCA scores range between 0-30; scores >26-30 is considered normal cognition, >17-26 as mild cognitive impairment and ≤ 17 as dementia. Patients with the score of ≤ 17 were excluded from the study. Primary endpoint of this analysis was to assess the change in MoCA score at 6 months follow-up, which was assessed using Analysis of Covariance (ANCOVA) modeling with study groups as factor and baseline score as covariate.

**Result:** A total of 49 patients (age: 69.5 ± 5.7 years, male: 29 (66%), CHA2DS2-VASc score: 3.67 ± 1.46) in the LAAO group and 47 patients (age: 68.6±5.5, male: 30 (64%), CHA2DS2-VASc score 2.63±1.22) on-OAC with baseline MoCA score >17 were included in the study and followed up prospectively. Mean baseline score was 26.45± 2.59 and 26.02±2.4 in the LAAO and OAC groups respectively. At 1 year, LAAO group showed significant improvement from their baseline score [0.90 (95% CI 0.40 to 1.4), p<0.001] whereas the MoCA score declined substantially in the OAC population [-3.14 (95% CI -4.57 to -1.73), p<0.001]. After adjusting for the baseline score, the Least Squares Means change was 1.0 ± 0.04 in the LAAO group and -3.26±0.49 in the OAC group (p<0.001). No TE events were reported in either group during the 1-year follow-up.

**Conclusion:** In this series, significant improvement in the post-procedure MoCA score was observed in AF patients receiving LAAO, whereas the score declined substantially in the OAC group. A plausible explanation for this differential observation could be that by reducing the risk of TE events as well as
micro bleeds associated with blood thinners, LAAO potentially protected the AF patients from further cognitive decline.