Introduction: Atrial fibrillation (AF) is associated with dementia. Catheter ablation for AF prolongs the duration of sinus rhythm, thereby improving the quality of life. This study aimed to investigate the impact of ablation on the occurrence of dementia.

Methods: We identified a total of 801,710 patients newly diagnosed with AF from 2006 to 2015 using the National Health Insurance Service of Korea. During the 10-year period, 10,081 ablations for AF were performed for 8,970 individuals without dementia. Propensity-score matching was used to construct two cohorts of equal size (n = 5,522) with similar characteristics in 48 dimensions.

Result: During a median follow-up period of 60 (IQR 29-97) months, compared to non-ablated patients, ablated patients showed a lower annual rate of overall dementia (0.58% vs. 1.09%, P<0.001), Alzheimer's dementia (0.43% vs. 0.67%, P<0.001), and vascular dementia (0.12% vs. 0.30%, P<0.001). Catheter ablation was found to be associated with the lower risk of overall dementia (hazard ratio [HR] 0.61, 95% confidence interval [CI] 0.48–0.77), even after censoring for stroke (HR 0.62, 95% CI 0.49–0.78), and regardless of stroke risk factors. Although the risk of Alzheimer's and vascular dementia was reduced by ablation, this effect was not observed in patients with low stroke risk and with adequate long-term oral anticoagulation.

Conclusion: Ablation may be associated with a lower incidence of overall, and Alzheimer and vascular dementia in AF patients. However, this effect was not observed in patients with adequate long-term oral anticoagulation, emphasizing the importance of adequate anticoagulation after ablation.