**Introduction**: Left atrial appendage (LAA) closure is an attractive alternative for stroke prevention in patients with atrial fibrillation (AF). The risk of stroke in patients with AF after LAA closure is still lacking of thorough studies. Our objective was to evaluate the potential risk factors of stroke in patients with AF after LAA closure.

**Methods**: Non-valvular AF patients at high risk of stroke were enrolled in the study and underwent LAA closure. Follow-up was performed at 45 days, 6 months, and 12 months. Univariate Cox regression analysis was computed to estimate hazard ratios (HRs) and 95% confidence intervals (CIs) for exploring the potential risks for incidence of stroke after LAA closure. Multivariable Cox proportional hazards regression analysis was performed for exploring independent clinical predictors for stroke.

**Result**: The multivariate Cox proportional hazards regression analyses showed that the peri-device flow (HR=4.584, 95% CI: 1.65 - 12.739, P=0.004) and continue coagulation (HR=0.272, 95% CI: 0.089 - 0.829, P=0.022) was association with stroke in patients with AF after LAA closure. The stroke rate for patients in the leak group was significantly higher, compared with the no-leak group (12.3 events/100 patient-years versus 1.9 events/100 patient-years, P<0.001). Furthermore, patients with persistent peri-device flow may have an increased rate of strokes (HR=5.041 (95%CI: 1.668-15.230)).

**Conclusion**: Peri-device flow was associated with the rate of strokes at short-term follow-up.