Introduction: Cryoballoon (CB) ablation for atrial fibrillation (AF) creates larger lesion in the left atrium (LA) compared to conventional radiofrequency pulmonary vein isolation (PVI). Inflammatory reactions of ablation lesion creation are highly related to early recurrence of AF after catheter ablation. To the date, the effect of corticosteroid therapy on suppressing early recurrence of AF after cryoballoon ablation has not been clear. Therefore, the aim of this study was to investigate the efficacy of peri-procedural corticosteroid therapy for preventing early recurrence of AF after cryoballoon catheter ablation.

Methods: A total of 39 consecutive paroxysmal AF patients who underwent PVI using 2nd generation cryoballoon catheter were investigated. CB ablation was performed using standard protocols, freeze of 180 sec or additional 60 sec freeze after electrical PV isolation. Anti-arrhythmic drugs were continued during 2 months blanking period. Intravenous hydrocortisone (2 mg/kg) was given immediately after CB ablation, and oral prednisolone (0.5 mg/kg/day) administration was followed for 2 days after the PVI in corticosteroid group. The outcomes of early recurrence of AF (AF recurrence ≤3 days after ablation and during blanking periods) and inflammatory parameters including body temperature (BT) and serum C-reactive protein (CRP) level were compared between patients with or without corticosteroid therapy.

Result: Eleven of 39 patients were received peri-procedural corticosteroid therapy. Acute electrical isolation of all PVs was achieved in all patients. Number and duration of freeze and the prevalence of non PV AF foci were not different between the groups. The incidence of immediate AF recurrence (≤3 days after ablation) was significantly lower in the corticosteroid group than in the control (0% vs. 28%, p=0.047). The incidence of adverse event such as procedural complications, infection and digestive ulcer was not different between groups.

Conclusion: Peri-procedural corticosteroid therapy immediately after CB ablation effectively prevented early recurrence of AF. Further investigation including long-term outcomes is required to clarify the findings in the present study.