Examination about procedure time, acute phase success rate and 1 year no-recurrence rate of the second generation Cryoballoon ablation for atrial fibrillation.

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Introduction: The second generation Cryoballoon ablation (CBA) for paroxysmal atrial fibrillation (PAF) has widely spread. There are some articles on the learning curve of CBA procedure time, but few articles on acute phase success rate.

Methods: We evaluated retrospectively consecutive 400 patients received CBA from September 2014 to January 2018 at Kyoto University Hospital. The mean age was 67±11 year-old. There were 140 women (35% of all) and 378 PAF patients (95% of all). The mean diameter of left atrium was 37.5±5.9 mm. We separated those patients to 2 groups: T1; 1 to 200 patients (September 2014-March 2016) and T2; 201 to 400 patients (March 2016-January 2018) and compared in both groups. There was no significant difference between the two groups in age (T1:T2=67±10: 67±12 year-old, P=0.98) and the rate of women (T1:T2=33:37%, P=0.40). The diameter of left atrium was significantly larger in T1 (T1:T2=38.6±6.3: 36.3±5.2 mm, P=0.0001).

Result: Perioperative procedure time in the left atrium, fluoroscopy time and fluoroscopic dose were significantly shorter in T2 (procedure time in the left atrium T1:T2=98±34min:82±26min; P<0.001, fluoroscopy time T1:T2=57±20min:42±13min; P<0.001, fluoroscopic dose T1:T2=453.7±279.5mGy: 302.1±229.0mGy; P<0.001). Touch-up frequency were less in T2 (T1:T2=22%:11%; P=0.0017). Death and systemic embolism were not occurred in this study. Complications that required treat (acute gastric dilation, cardiac tamponade and vascular event, etc) were 5.3% of all and there was no significant difference between both groups (T1:T2=5.5%:5.0%; P=0.82). There was no significant difference in 1 year no recurrence rate (T1:T2=85.1±2.6%: 86.1±2.5% P=0.9272).

Conclusion: The rate of one-year success and complication were similar in both groups, but procedure and fluoroscopy time were shorter and the rate of additional touch-up procedure was lower in T2.