

Impact of body mass index on atrial fibrillation ablation using cryoballoon: procedural data and clinical outcomes

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Background: The impact of body mass index (BMI) on atrial fibrillation (AF) ablation using cryoballoon (CB) has been seldom reported.

Purpose: To evaluate the impact of BMI on procedural data as well as the clinical efficacy and safety character of using CB.

Methods: Symptomatic AF patients (paroxysmal / persistent AF) with BMI ≥ 25 who underwent CB based pulmonary vein isolation (PVI) were enrolled. CB PVI was performed using the second generation CB (CB 2, 28mm), with 4min based freeze protocol and bonus freeze delivery in case of time-to-isolation (TTI) > 75 sec. All procedures were performed under conscious sedation. Procedural endpoint was electrical pulmonary vein isolation. Clinical success was defined as no recurrence of AF/atrial tachycardia (AT).

Results: Data from 600 consecutive patients were collected. Three groups defined: BMI 25–29 (Group 1, G1 n=337); BMI 30–34 (Group 2, G2 n=149); BMI ≥ 35 (Group 3, G3 n=114). Patients in Group 3 were younger (G1: 67 ± 11 y; G2: 68 ± 10 y G3 62 ± 11 y; $p < 0,001$) and presented bigger LA (G1: $39,5 \pm 4,9$ mm; G2: $41,6 \pm 5,5$; G3 $42,4 \pm 5,1$; $p < 0,001$). Most of the patients presented with PAF (G1: 59,3% G2: 57,7% G3: 54,4%).

Among 2342 Targeted PVs, 2332 (99,6%) were isolated using solely the CB (G2: one procedure was abolished due to failed aortic puncture during transseptal access; G3: one PVI was not completed due to PNP; 6 touch up RF ablation in G1 and 2 in G3). Procedure time (G1: 58,45 min; G2: 60,44 min; G3 63,19 min) and fluoroscopy time (G1: 9,3 min; G2: 9,5 G3: 10,6 min) were comparable among the groups. PN Injury was the main recorded complication: 20/600 (2,6%) patients with a transient PN palsy (PNP) and 6/600 (1%) with a persistent PNP. No sedation related complication was recorded.

Follow up survival curve analysis after one year revealed a favorable follow up in G1 (78,4%) and G2 (82,5%) compared to G3 (66,5%) (G1 Vs G3 p: 0,002 G2 vs G3 p=0,008, G1 vs G2 p=0,47). The influence of BMI on the follow up was confirmed in the subgroup of patients with paroxysmal AF but not in patients presenting persistent AF.

Conclusions: Cryoballoon ablation in obese patients is feasible and associated with a relatively low complication rate. BMI plays a role in predicting recurrences especially in patients presenting with paroxysmal AF.