Incidence of Gastroparegia After Pulmonary Vein Isolation With Cryoballoon Catheter in 25 Consecutive Patients Presenting Paroxysmic or Permanent Atrial Fibrillation

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Background: Various types of gastro-intestinal complications have already been reported after atrial fibrillation (AF) radiofrequency ablation. The objective of this prospective study was to assess the incidence of esogastric injuries after pulmonary vein isolation (PVI) with the cryoballoon catheter (Arctic Front, Cryocath, Quebec, Canada).

Methods: Between December 2007 and April 2009, 25 patients (15 males, mean age 55 years old) with symptomatic, drug refractory, paroxysmal (n=24) or persistent (n=1) AF underwent circumferential anterioal PVI using a cryoballoon catheter. Post-procedural upper gastro-intestinal endoscopy was systematically performed on the following day.

Results: All procedures were performed in patients using a double lumen 23 or 28 mm cryoballoon catheter, with a mean maximal temperature of −45.5 ± 19.7°C. Out of the 100 veins treated by the cryoballoon technique, 93 were completely isolated (93%). The number of balloon applications per vein was 2.2 ± 0.7 and the mean procedure time was 158.5 ± 28.7 minutes. Endoscopy found gastroparesia in 4 patients (16%, 2 gastric bezoar and 2 severe gastric stasis) which were considered as likely related to the ablation and due to vagal injury. All patients were asymptomatic. In 13 cases (52%), esogastroduodenal abnormalities were considered as fortuitous (peptic gastritis and esophagitis, n=8; gastric ulcer, n=1; hiatal hernia, n=5; esophageal lipoma, n=1). In one case, the endoscopy revealed a Mallory Weiss syndrome, presumably connected to pre-operative trans-esophageal echocardiography. Esogastroduodenal endoscopy was normal in only 8 cases (32%).

Conclusion: Cryoballoon catheter ablation for AF is associated with an unusual high incidence of gastroparesia (16%) which could be related to procedural periesophageal vagal nerve damage.
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Pulmonary vein isolation (PVI) became the usual approach for the treatment of atrial fibrillation (AF) refractory to medical antiarrhythmic treatment. Pulmonary vein isolation with a cryoballon is a new technique which allows a circumferential PVI.

Aim: to assess the feasibility, efficacy, and safety of using a cryoballon catheter to achieve pulmonary vein isolation (PVI).

Methods: 67 patients with symptomatic AF (50 paroxysmal) were accepted for PVI with a cryoballon. They were seen on an outpatient basis every three months or if they complained of AF-related symptoms. A 48-hour Holter recording was used to document asymptomatic AF at 3 months. We compiled acute and mid-term results and reviewed complications and safety issues with regard to the procedure.

Results: 217 (85%) veins were successfully isolated with a single cryoballon application. The success of isolation depends on the extent of venous occlusion during application. The average procedure time was 178 minutes; the average fluoroscopy time, 43 minutes. Patients were followed for a median of 9.7 months. Eighty-five percent were free from recurrent AF or arrhythmia-related symptoms. Freedom from AF results were more significant among patients with paroxysmal AF (90% of patients Vs 60% among patients with persistent AF). The phrenic nerve palsy (PNP) is the most frequent complication (6 cases), it is always reversible. Four patients have presented a minor pericardic effusion.

Conclusions: despite the occurrence of minor complications, PVI using a cryoballon is feasible with a high rate of acute success and excellent mid-term results. These results, comparable to those obtained with radiofrequency (RF) energy, have helped make cryoballon ablation our first-line therapy for the treatment of paroxysmal AF.

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Atrial fibrillation ablation monitored by minimally invasive echocardiography using AcuNaV probe

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Objective: To assess the usefulness of miniature transoesophageal echocardiography using AcuNav probe (10F, TEO-AcuNav) for the monitoring of atrial fibrillation ablation in awake patients.

Methods: TEO-AcuNav was used in 50 consecutive patients (55±13 years, 67% male) referred for atrial fibrillation ablation (76% paroxysmal, 24% persistent or permanent) to guide trans-septal catheterisation and to identify the occurrence of thrombosis during the procedure.

Results: Transseptal catheterisation monitored by TEO-AcuNaV was successfully performed in all patients but one where standard TEE confirmed the presence of a left auricular thrombus. Importantly, TEO-AcuNav identified a right side catheter related thrombus leading to retrieve the catheter. In addition, 3 pericardial effusions were documented during the procedure. Finally, TEO-AcuNav was perfectly tolerated in all patients even though maintained awake.

Conclusion: Transoesophageal AcuNav echography is safe and well tolerated and allows efficacious monitoring of atrial fibrillation ablation without general anesthesia.

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Indication, technique and results of Radio-frequency ablation of premature ventricular beats

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Introduction: radio-frequency (RF) ablation of premature ventricular beats (PVB) has been only reported as isolated cases or in short series.

Methods: 34 successive pts (25 men, 53 ± 18 yo) underwent RF ablation of frequent or symptomatic isolated PVB at our institution from 2005 to 2009. Indication, technique and results were reported.

Results: 43 RF ablation of PVB was performed for post-ischemic electrical storm in 7 pts (6 men), for symptomatic PVB in 7 (3 men) and for suspected VPB-induced tachycardiomyopathy in 20 (16 men) with 1,2 procedure/pt. RF was performed in each case using pace mapping and activation mapping with conventional technique. RF ablation of PVB during intractable post-ischemic electrical storm was initially successful in each pt but fatal electrical storm occurred in 4 during the following days. PVB were targeted in the left septal Purkinje network. 10 procedures were performed in 7 pts for palpitations or syncope, leading to complete or partial clinical success in 6 (PVB reduction 9400 ± 12200 to 420 ± 610 /24h, NS). 25 procedures were performed for suspected VPB-induced tachycardiomyopathy in 20 pts leading to complete success in 9 pts and to significant decrease in VPB in 5 pts. Mean VPB/24h was 17800 ± 8600 before and 3410 ± 8150 after and 125 ± 230 at 11 ± 6 months follow-up (p=0,0005). EF increase from 41 ± 8 to 53 ± 7 % (p=0.0001). Main locations of the PVB were RVOT, right or left aortic cusps, left basal septum, LVOT and lateral basal LV. Complications were asymptomatic mild pericardial effusion in one pt, transient AV block in one and transient ischemic stroke in one.

Conclusions: RF ablation of PVB may be indicated if highly symptomatic, for electrical storm or for suspected tachycardiomyopathy with good although imperfect success rate