24-hour Holter recording before and after procedure were enrolled. PVI was performed by CBA (CBA group: n=15) and by HBA (HBA group: n=12). Touch up radio frequency application was performed in case pulmonary vein potential remain after balloon ablation. Frequency-domain HRV parameters were analyzed based on maximum entropy method and compared in each groups.

Results: The PVI was achieved at the end of session in all patients. In CBA group, LF components, LF/HF ratio and heart rate (HR) were significantly changed before and after procedure (-226.0±244.4; p = 0.03, -1.67±1.41; p < 0.01, 4.19±7.23; p = 0.04). However, HF components were reduced after procedure, though the difference was not statistically significant (-37.0±152.0; p = 0.36). In HBA group, LF and HF components were significantly changed before and after procedure (-122.8±183.7; p = 0.04, -39.4±54.2; p = 0.02). Meanwhile, LF/HF ratio and HR were less affected (-0.62±1.40; p = 0.15, 2.39±7.00; p = 0.26).

Conclusion: HBA may not affect sympathetic nerve activity after procedure.

Evaluation of the mortality in patients with atrial fibrillation in a large electronic cohort: Clinical Outcomes in Digital Electrocardiography (CODE) study

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Introduction/Background: Atrial fibrillation (AF), a major abnormality of ECG, is a public health problem with increasing prevalence as the population ages, associated with cardiovascular mortality and morbidity. We evaluated the prognostic value of the presence of AF in 12-lead ECG in a large electronic cohort.

Methods: This is an observational retrospective study, developed using the database of digital ECGs from the Telehealth Network of Minas Gerais (TNMG). The TNMG is a large public Brazilian telehealth system that provides tele-ECG services for more than 780 municipalities, mostly to Primary Health Centers. For this study, all ECGs from patients of at least 10 years-old from 2010 to 2016 were assessed. The electronic cohort was obtained linking data from the ECG exams and those from the national mortality information system, using standard probabilistic linkage methods. From a dataset of 1,976,709 available ECGs, 1,600,948 patients with ECGs were obtained, after exclusion of invalid and repeated exams. Clinical data were self-reported, and ECGs were interpreted by a team of trained cardiologists using standardized criteria.

Results: The mean (SD) age of the sample was 52.76 (19.48) years, 41% male. The mean follow-up was 3.5 years with 44,523 (2.78%) deaths for all causes. The prevalence of AF was 1.26% overall with mortality rate of 11.48%. In univariate analysis, patients with AF had increased risk of death for all causes (HR 4.07; CI 95% 3.91 – 4.25). After adjusting for sex and age, AF remains related to increased risk of death (HR 2.31; CI 95% 2.22 – 2.41). Male sex was a predictor of death risk in AF patients (HR 1.7; CI 95% 1.66 – 1.72).

Conclusions: Electronic cohort are useful in the determination of the prognostic value of electrocardiographic abnormalities. In our study, AF was a strong predictor of mortality for all causes in primary care population.

Modulation of Autonomic Response and Atrial Conduction after Cryoablation versus Radiofrequency Ablation for Paroxysmal Atrial Fibrillation

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Background: Cryoablation (CRYO) has emerged as an alternative to radiofrequency catheter ablation (RFCA) for the treatment of paroxysmal atrial fibrillation (PAF). The purpose of this study was to investigate the influence of cardiac autonomic system and atrial late potential (ALP) modulated by CRYO or RFCA during 6 months follow-up.

Methods: Thirty consecutive patients with PAF of non-structural heart disease underwent CRYO (n=15) or RFCA (n=15) for PV isolation. Heart rate variability (HRV) and deceleration capacity (DC), and ALPs were examined by high resolution ambulatory ECG (HR- ambulatory ECG) before ablation and after, 1 month and 6 months following ablation.

Results: Eleven (73%) in CRYO group and 12 patients (80%) in RFCA group were free from PAF during 6 months after procedure (p=n.s). SDANN of HRV and DC significantly decreased after 1 month in both groups. These changes reversed toward values as baseline at 6 months in CRYO group, however maintained inhibiting as an adornment in RFCA group. P-wave duration of ALP increased after CRYO at 1 month, while changed toward values of baseline at 6 months. The changes of ALP were not observed in RFCA group.

Conclusions: PV isolation for PAF by CRYO is as effective as RFCA until 6 months. The analysis by using the HR- ambulatory ECG indicated the difference of time-course modulations in parasympathetic autonomic response and atrial conduction delay between CRYO and RFCA procedure. Longer follow-up more than 6 months should be needed to evaluate whether these differences are associated with a recurrence rate of PAF after ablation.

Signal-averaged Electrocardiograph Can Evaluate Citrate Response and Vasovagal Reflex During Apheresis Donation

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Background: Adverse event of apheresis donation include citrate response and vasovagal reflex (VVR). Hypocalcemia may relate in the citric acid reaction, and there is a possibility of arrhythmia induction. We verified a risk for citric acid reaction and VVR. Our hypothesis is that QTc interval may reflect citrate response, and signal-averaged electrocardiograph (ECG) may be valuable for verifying a pathophysiology of VVR.

Methods: The subjects were 69 consecutive subjects who received platelets apheresis donation using bowl type blood collection equipment. All ECG data were recorded during apheresis donation all steps (4 to 5 cycles) from before puncture until after needle-drawn. This examination was approved by ethics committee (No.2016-027). We analyzed heart rate (HR), sympathetic nerve activity (LF/HF), QTc interval using signal-averaged ECG, and processed blood volume and amount of ACD-A solution.

Results: HR was 70 ± 10 bpm at control, and 78 ± 10 bpm at 4 cycles (p <0.001). LF / HF was 1.0 ± 0.2 at control, and 1.3 ± 0.3 at 4 cycles (p < 0.01). QTc time was 398 ± 15 ms at control, 417 ± 14 ms at 4 cycles (p <0.001). There was a positive correlation trend between ACD-A amount and QTc difference (p=0.016). In 4 donors,