Aim of this study is to assess the rate of VP and atrial arrhythmias (AA) according to indication of pacing and programming MVP function during long term follow-up.

Methods: The multicenter observational Generation MVP study included 264 patients aged 77±10 years (men: 52%) implanted for sinus node dysfunction (SNV) (n=141) or AVB (n=123). Programming function MVP has been left to the discretion of the physician. Percentage of VP and percentage of patients with paroxysmic or persistent AA was assessed on average at 2 and 10 months according to the indication of pacing and the state of programming MVP function.

Results: Percentage of VP at 2 and 10 months is significantly lower for the 2 groups of indication for patients with MVP function activated [On] compared with patients without MVP function [Off]. AA burden at 2 and 10 months was significantly lower when the MVP function is programmed [On] in AVB and SNV groups.

Conclusion: In this study performed in current practice, at 2 and 10 months follow-up, programming function MVP is associated with a significant decrease of VP for SNV and AVB indications. Moreover programming function MVP is associated with a significant decrease of AA burden at each time and each indication.

Lack of complete right inferior pulmonary vein isolation during cryo-balloon AF ablation is a predictor of mid-term AF recurrences

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Introduction: Pulmonary vein isolation (PVI) using cryotherapy has emerged as an interesting alternative to radiofrequency PVI in patients with paroxysmal atrial fibrillation (AF). However, recurrences of AF are still emerged as an interesting alternative to radiofrequency PVI in patients with paroxysmal atrial fibrillation (AF). However, recurrences of AF are still common using cryotherapy. The objective of this study was to search for predictors of mid-term AF recurrence after cryoballoon ablation of AF.

Methods: In 55 consecutive patients with symptomatic paroxysmal AF (36 males, age 56±10 years), circumferential PVI was performed using a cryoballoon catheter. At 4 months follow up, patients underwent clinical review and 24-hour Holter recordings. Clinical and demographic variables were analyzed via logistic regression to assess for predictors of recurrence.

Results: Among the 55 patients, 46 had complete isolation of all PVs (84%). Of 220 treated veins, 14 were incompletely isolated (6%). At a mean follow up of 4.1±1.5 months, freedom from tachyarrhythmia was observed in 35 patients (64%, success group), whereas 20 patients had recurrence of tachyarrhythmia (36%, failure group). Among these 20 patients, 15 had AF, 4 had atrial flutter and 1 patient had atrial tachycardia. Of all clinical variables analyzed, incomplete isolation of the right inferior PV, mean CHA2DS2 score and early recurrence of AF within 4 days post ablation were predictors of mid-term AF recurrence (P=0.009, P=0.03 and P=0.01, respectively).

Conclusions: Cryoballoon PVI can be safely achieved with an acceptable success rate at 4 months follow-up. Early recurrence of AF within 4 days post ablation seems to be a predictor of mid-term AF recurrence. Although right inferior PV is the most challenging vein to isolate because of its anatomical relationship with the interatrial septum, its complete isolation seems to be an important parameter to achieve mid-term clinical success.

Prevalence of intraventricular conduction disturbances in a large population of aircrew members

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Background: The interpretation of QRS variation and duration in ECG was newly standardized in 2009 by the American Heart Association. The aim of this study was to define the prevalence of intraventricular conduction disturbance (ICoD) in a population of Aircrew Members (AM) using these recommendations.

Methods: AM (military and civilian jet and transport crew) are periodically examined for fitness assessment at the same health care center (CPEMPN) with a standard 12-leads ECG at each visit. ECG is computerized, analysed by one physician and then stocked in a data base. All the ECG with ICoD were extracted from the data base using TraceMaster ECG system. All these ECG were reviewed independently and blindly by a junior and a senior physician, compared with an equal number of normaly defined ECG to validate the computerized extraction.

Results: From 01/01/1996 to 09/30/2010, 45 160 AM [67.6% male, mean age (ma):36.8 y/ 11 y, range 17-77 y] were examined, 222 867 ECG were recorded. The reviewed 12-leads ECG revealed 792 Incomplete Right Bundle branch Block [1,75% ma: 32.8 y, 95.4% male(2.48%), 4.6% female (0.25%)]; 203 Complete Right Bundle Branch Block [0,45% ma: 41 yo, 94,1% male (0,63%), 5,9% female (0.08%)]; 760 Left Anterior Fascicular Block [1,68% ma: 40.3 y, 88% male (2,19%), 12% female (0.6%)], 88 Left Posterior Fascicular Block [0,19% ma: 31 yo, 77% male (0,22%), 23% female (0,14%)], 56 Complete Left Bundle Branch Block [0,12% ma: 50 y, 75% male (0,14%), 25% female (0,1%)].

Conclusion: This study is the first prevalence study using the new standard of interpretation of ECG for a large population. However, ICoD remain a situation of high importance in this particular population (including fighter pilot) because this may be caused by structural abnormalities in the heart conduction system or ventricular myocardium and thus may impact the flight safety.
Conclusion: This large study confirms a high prevalence of ERP in a middle-aged population, particularly in men. Long-term total mortality in women with ERP was particularly increased.

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Prevalence, electrocardiographic characteristics and variations of early repolarization syndrome on a population of healthy subjects

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Background: Infero-lateral repolarization has been considered benign for a long time, however recent studies have demonstrated a possible association with sudden death.

The aim of this study is to estimate the prevalence of early repolarization, demonstrate the associated electrocardiographic abnormalities and fluctuations of this syndrome in a population of healthy subjects.

Patients and methods: Electrocardiograms of 1983 patients undergoing routine medical examination at the Centre Principal d’Expertise Médicale des Personnels Navigants of HIA Percy (Clamart, 92, France) from early January to late March 2000 were described. Early repolarization was defined as an elevation of J wave of at least 0.1 mV in the inferior and lateral leads. In patients with early repolarization, retrospective analysis of electrocardiograms from the following ten years (2000-2010) was carried out. Clinical and electrocardiographical characteristics were statistically analyzed.

Results: The prevalence of early repolarization was estimated at 5.7% (CI 95%, 4.7-6.7%). 3 patients presented with ECG severity criteria (inferolateral early repolarization, J wave>0.2 mV and notching). For 20% of patients early repolarization was intermittent and 56.5% had substantial variations in J wave amplitude, morphology or territory. Early repolarization was commonly associated with ST-segment elevation, prominent T waves, slower cardiac heart rate and shorter corrected QT duration. No malignant ventricular arrhythmia nor sudden death occurred among the 3 patients during the 10 years follow-up.

Conclusions: Our data are consistent with previous studies concerning early repolarization syndrome. Given the high prevalence and important fluctuations of early repolarization, every patient who presents with this syndrome cannot be considered to be at risk of sudden death. Further research is needed to identify the electrocardiographic forms of this syndrome which are associated with an increased risk of mortality.

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Seizure disorders and electrocardiogram abnormalities

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Transient loss of consciousness is one of the most frequent reasons of hospitalization. Besides epileptic syndromes and ventricular arrhythmias documented by ECG, many assessments of loss of consciousness remain answered.

This study aims to detect electrical heart disease in patients diagnosed and follow up in the neurology department as epileptic seizure disorder without organic abnormality.

Methods: The electrocardiograms of patients hospitalized in 2008-2009 for the first or repetitive seizure episode(s) with or without established diagnosis of cryptogenic epilepsy were retrospectively analyzed. Patients presenting with seizure disorder in 2009-2010 were prospectively studied.

Results: 63 patients (38 male, 29 yo) met the diagnosis of cryptogenic epilepsy. Four (6%) had ECG abnormalities. On retrospective analysis, we found two ECGs of BRUGADA syndrome type 2 (3%) one of which was confirmed on Ajmaline test (1.5%). Prospectively, one patient had QT pathology and another was diagnosed to have coronary spasm induced ST elevation interval.

Conclusion: In a population of cryptogenic epilepsy, 3/63 (4.7%) had electrical heart disease that may be responsible for seizure (convulsive syncope). Close collaboration between emergency physicians, neurologists and cardiologists is crucial to improve diagnosis of seizure disorders in patients with normal heart and brain.

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Circadian variations of ST segment elevation in Brugada syndrome: comparison between symptomatic and asymptomatic patients

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Introduction: Brugada syndrome (BS) associates a typical ST segment elevation (STE) in the right precordial leads and an increased risk of sudden cardiac death. Questions remain on the rhythmic risk stratification, especially in asymptomatic patients (pts). Modulations of STE and of rhythmic events by the autonomic nervous system were previously reported. The aim of this study was to assess and compare the circadian variations of STE in symptomatic (group S) and asymptomatic pts (group A) with BS.

Methods: Twenty two pts with a BS (mean age=44.3±13.7, men=19) were included (S: n=10; A: n=12). In each pt, a 12 leads ECG was acquired using 24 hours Holter recording. Using a dedicated algorithm, an average QRS-T complex was obtained every minute for each lead (V1-V3). STE was measured in 6 points located 100, 110, 120, 130 and 140 ms after QRS onset (Qo). The coefficient of circadian fluctuations of STE (STE-CFC) was defined by the difference STEmax-STEmin.

Results: The STE-CFC was higher in group S. For example 120 ms after Qo the STE-CFC in V1 was 274±143 μV in group S vs 152±42 μV in group A (p<0.01) and 130 ms after Qo in V2 it was 365±178 μV in group S vs 218±108 μV in group A (p<0.01). Typical examples are presented in the figure: STE in lead V2 for each average QRS-T complex during 24 hours measured 120ms after Qo in 1 symptomatic pt (A) and 1 asymptomatic pt (B).

Conclusion: Symptomatic pts with BS have a higher level of STE circardian variations. The rhythmic risk could be favoured by these fluctuations of BS phenotypic expression. The mechanisms inducing these fluctuations (autonomic cardiac innervation, receptor sensitivity) are not yet identified.