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Original Article

What is The Utility of Electrophysiological Study in Elderly Patients with Syncope and Heart Disease?

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Abstract

Background: Syncope in elderly patients with heart disease is a growing problem. Its aetiological diagnosis is often difficult. We intended to investigate the value of the electrophysiological study (EPS) in old patients with syncope and heart disease.

Methods: EPS was performed in 182 consecutive patients with syncope and heart disease, among whom 62 patients were ≥75 years old and 120 patients <75.

Results: Left ventricular ejection fraction was 43.9±11.7% in patients ≥75 and 41.1±12.6% in patients <75. During EPS, induced sustained ventricular arrhythmias were as frequent in both groups (27.4% in patients ≥75 versus 27.5% in patients <75, p=0.99) whereas AV conduction abnormalities were more frequent in older patients (37.1% in patients ≥75 versus 18.3% in patients<75, p<0.005). Syncope remained unexplained in 35.5% of patients ≥75 and in 51.7% of patients <75 (p<0.04). ICD was more likely to be implanted in younger patients than in patients ≥75 years (37.5% vs 21% respectively, p<0.009). During a mean follow-up period of 3.3±3 years, the 4-year-survival rate was 66.9±6.8 % in patients ≥75 and 75.9±6.2 % in patients <75 years. The main cause of death was heart failure in both groups. The factors related to a worse outcome in a multivariate analysis were low LVEF and higher age.

Conclusion: Complete EPS allows the identification of treatable causes in a high proportion of elderly patients with syncope and heart disease. Yet, the prognosis of these patients is mainly related to LVEF and age.

Keywords: syncope, heart disease, electrophysiological study, elderly

Introduction

Syncope is a transient loss of consciousness due to a global cerebral hypo-perfusion characterized by a rapid onset, short duration, and spontaneous complete recovery. [1] Structural heart disease is a major risk factor for sudden cardiac death and overall mortality in patients with syncope. [1-4] The poor outcome in these patients appears to be related to the severity of their underlying heart disease (HD) rather than to syncope itself. [5,6]

Syncope is a common problem in elderly, especially in patients aged 70 years or older. [7] Aetiologic diagnosis is often difficult because of the frequent coexistence of several causes. The most common causes of syncope in the elderly are orthostatic hypotension, reflex syncope - especially micturition syncope and carotid sinus syndrome - and cardiac arrhythmias. [8,9] Cardiac origin accounts for more than 30% of the cases [1,10] whereas the syncope remains of unknown origin (SUO) in one out of three cases. The therapeutic goals in these patients are prevention of recurrences, treatment of underlying HD and reduction of cardiac mortality.

Electrophysiology study (EPS) can help to achieve these goals in selected patients. Indeed, EPS has a better yield in patients with HD. [11] Yet, indications for EPS are currently scarce, being only recommended in patients with HD and LVEF > 35%. [1] As a consequence, it is performed in less than 2 % of patients with syncope [1] and very infrequently in patients with advanced age. Importantly, the benefit of a prophylactic implantation of an implantable Cardioverter defibrillator (ICD) in elderly is believed to be less [12].

The objectives of the present study were, therefore, to evaluate the yield of EPS in elderly (≥75 years) with HD and SUO for the identification of an underlying possible cause. In addition, we intended to assess the risk factors for cardiac death in these patients who underwent EPS.

Patients and methods

All patients with HD (ischemic, dilated cardiomyopathy) and SUO were included between 2003 and 2013. These patients were allocated to two groups according to their age.

Group A with 62 patients aged 75 years and above, included 48 males and 14 females. The mean age was 79 ± 3.6 years. 50 of them (80.6%) presented with coronary HD and 12 (19.3) with dilated cardiomyopathy. The mean LVEF was 43.9% ± 11.7, 44.5±12% in patients with coronary HD and 40±9.5 % in patients with dilated cardiomyopathy. Patients with coronary HD generally had a previous history of myocardial infarction. In this group left anterior hemiblock was present in 5 patients, right bundle branch block associated (n=10 or not n=3) was present in 13 patients and left bundle branch block was noted in 15 patients. Group B with 120 patients younger than 75 years old, included 105 males and 15 females. There was a tendency for a lower number of females. The mean age was 60.1 ± 11.4 years. 78 of them (65%) presented with coronary HD and 42 (35%) with dilated cardiomyopathy. The mean LVEF was 41.1% ± 12.6. In this group left anterior hemiblock was present in 11 patients, right bundle branch block associated (n=8 or not n=6) was present in 14 patients and left bundle branch block was noted in 15 patients.

Data of the population are summarized in **Table 1**.

Table 1: Clinical data of the population

	Group A (≥75 yrs) N=62	Group B (<75 yrs), N =120	P value
Age (years)	79 ± 3.6	60.1 ± 11.4	<0.001
Female	22.6%	12.5%	0.08
LVEF	43.9 ± 11.7 %	41.1 ± 12.6%	0.15
Ischemic	80.6%	65%	0.03
LVEF < 0.35	33.5%	40.8%	0.48
QRS (ms)	135 ± 33.7	119.4 ± 37.9	0.01