

Syncope – new diagnostic possibilities using ILR. Case report

Diana Paskudzka^{1,A-F}, Łukasz Januszkiewicz^{1,A-F}

A - Research concept and design, B - Collection and/or assembly of data, C - Data analysis and interpretation, D - Writing the article, E - Critical revision of the article, F - Final approval of article

1 1st Department of Cardiology, Medical University of Warsaw, Poland

Address for correspondence:

Diana Paskudzka, 1st Department of Cardiology, Medical University of Warsaw, Poland
email: paskudzkadiana@gmail.com

Łukasz Januszkiewicz, 1st Department of Cardiology, Medical University of Warsaw, Poland
email: lukasz.jan.januszkiewicz@gmail.com

Received: 2019-12-28

Revised: 2019-12-29

Accepted: 2019-12-29

Final review: 2019-12-29

DOI: 10.24255/hbj/115987

Abstract

Syncope is defined as transient loss of consciousness. The incidence of syncope is high and the risk of occurrence in life is 42% in the general population. Cardiac syncope has a much higher mortality rate than syncope of non-cardiac causes, and the main mechanism is arrhythmia. The diagnostic evaluation consists of a careful interview, physical examination with or-

thostatic blood pressure measurement and electrocardiogram (ECG). However, the cause of syncope might be problematic to diagnose. The implantable loop recorder (ILR) can be a useful diagnostic device. We present the case of a 64-year-old female patient referred to our department for the diagnosis of syncope.

Key words:

arrhythmia, syncope, implantable loop recorder

Introduction

Syncope is defined as transient loss of consciousness due to cerebral hypoperfusion, characterized by a rapid onset, short duration, and spontaneous complete recovery⁽¹⁾. The incidence and frequency of syncope are high and the risk of lifetime occurrence is 42% in the general population⁽²⁾. The prognosis of syncope is related both to underlying comorbidities and etiology, with cardiac syncope having a significantly higher mortality than syncope of non-cardiac origin^(2,3). The main cause of cardiac syncope is the arrhythmic mechanism. Initial diagnostic tests, including a careful history, physical examination with orthostatic blood pressure measurements and electrocardiogram (ECG), are able to explain the cause of syncope in 23–50% of patients^(4,5). 24-h Holter monitoring or

longer is also useful. However, a significant number of arrhythmia episodes may remain undetected by Holter monitoring. The limited diagnostic performance of existing external ECG monitors has led to the development of an implantable loop recorder (ILR) that has the ability to detect arrhythmias in a minimum of 2-3 years⁽⁶⁾. The ILR, also known as an insertable cardiac monitor, is a device implanted subcutaneously, which is used for diagnosing heart rhythm disorders^(7,8). The use of the ILR may be beneficial for patients with unexplained syncope. This device should allow correlation between symptoms and arrhythmias to determine the best therapy for the patient⁽⁷⁾. Registry data show that about 3% of patients with unexplained syncope assessed by cardiologists undergo electrophysiological examination (EPS)⁽⁹⁾. In recent years, the development of effective non-invasive methods, for example

extended ECG monitoring with a higher diagnostic value, has reduced the importance of EPS as a diagnostic test. However, in diagnosing the following specific clinical situations, EPS still remains useful: asymptomatic sinus bradycardia (suspected sinus arrest causing syncope), bifascicular bundle branch block (impending high-degree atrioventricular block), and suspected tachycardia⁽¹⁾.

Case report

A 64-year-old woman with recurrent syncope was admitted to the clinic for an EPS and implantation of an ILR. The patient has had 3 complete losses of consciousness since 2016, without prodromal symptoms. The last episode was in June 2019 with head trauma (fracture of the occipital bone on the right, hematoma in the left temporal lobe). The patient had a history

of: RF ablation of atrial flutter (2016), arachnoid cyst in the left temporal lobe, lower limb varicose vein surgery, thyroid nodules during diagnosis, depressive disorders, nicotineism. There was no family history of sudden death. In the tilt table test (July 30, 2019), after administration of nitroglycerin, a mixed vasovagal reaction was found which did not correspond to spontaneous syncope. Carotid sinus massage test was negative. On August 1, 2019, the EPS was performed. The corrected sinus node recovery time (CSNRT) was measured by rapid atrial pacing from the high right atrium for 30 seconds. The shortest atrial pacing cycle length that maintained 1:1 antero-grade conduction was within normal limits. The A-H interval was unchanged at the end of the procedure. The maximum corrected SNRT was 474 ms, which was observed after 60 seconds long 130 bpm atrial pacing. The correct parameters of automatism and conduction were confirmed; spontaneous

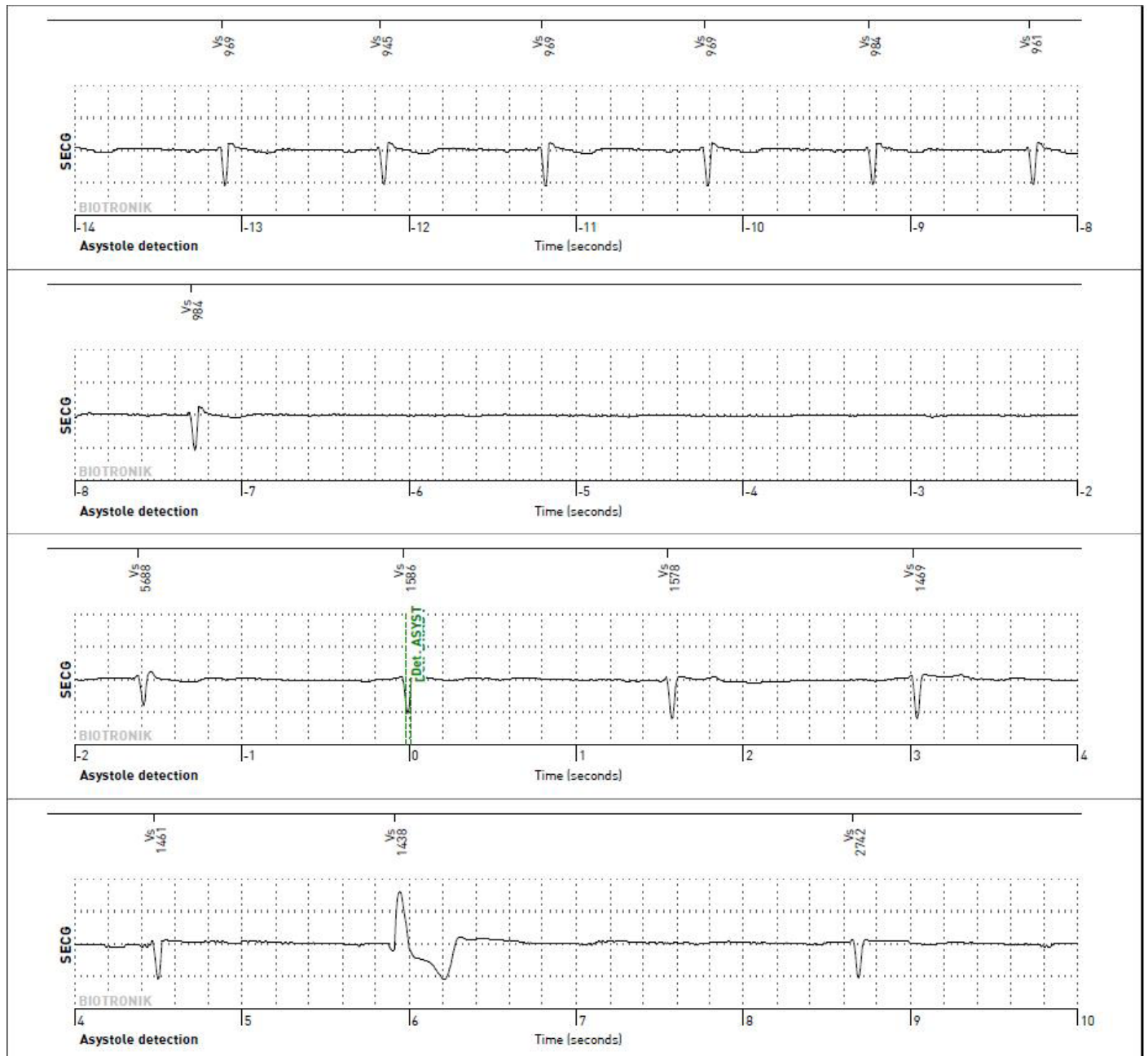


Figure 1.

atrial fibrillation episodes were triggered and weakly felt by the patient. After discussion with the patient, oral anticoagulation therapy with rivaroxaban 15 mg/day was continued. One day later, the Bionitor III (Biotronik) was implanted. After activation of the Home Monitoring system (Biotronik), the patient was discharged in good general condition. On December 6, 2019, the first episode was recorded by the ILR and transmitted. An asystole episode lasting 5.8 seconds was detected (Figure 1). During telephone contact, the patient confirmed that she had syncope when the pause was registered. The ILR clarified the cause of the symptoms. The patient was scheduled for pacemaker implantation.

References

1. Brignole M, et al. 2018 ESC Guidelines for the diagnosis and management of syncope. *European Heart Journal* (2018) 39, 1883–1948. doi:10.1093/eurheartj/ehy037
2. E. Soteriades, J. Evans, M. Larson, et al., Incidence and prognosis of syncope, *N. Engl. J. Med.* 347 (12) (2002) 878–885.
3. S. Day, E. Cook, H. Funkenstein, L. Goldman, Evaluation and outcome of emergency room patients with transient loss of consciousness, *Am. J. Med.* 73 (1) (1982) 15–23.
4. F. Croci, M. Brignole, P. Alboni, C. Menozzi, et al., The application of a standardized strategy of evaluation in patients with syncope referred to three syncope units, *Europace.* 4 (4) (2002) 351–355.
5. S. Crane, Risk stratification of patients with syncope in an accident and emergency department, *Emerg. Med. J.* 19 (1) (2002) 23–27.
6. Padmanabhan D, Kancharla K, El-Harasis Majd A. et al. Diagnostic and therapeutic value of implantable loop recorder: A tertiary care center experience. *Pacing Clin Electrophysiol.* 2019;42:38–45.
7. Task Force Members, Brignole M, et al. Indications for the use of diagnostic implantable and external ECG loop recorders. *Europace.* 2009;11 (5):671–87.
8. Bisignani A, De Bonis S, Mancuso L, et al. Implantable loop recorder in clinical practice. *Journal of Arrhythmia.* 2019;35:25–32.
9. Gaggioli G, Laffi M, Montemanni M, et al. Risk of syncope during work. *Europace.* 2014; 16(2): 289–292, doi: 10.1093/europace/eut247, indexed in Pubmed: 23933849.