IMAGES IN ELECTROPHYSIOLOGY/PACING

Multiple exercise induced syncopal episodes in a young woman due to arrhythmogenic right ventricular dysplasia

Wilfried Mullens*, Laurent Pison, Pieter Vandervoort, Jos Eerdekens, Philip De Vusser

Ziekenhuis Oost-Limburg Genk, Cardiology, Schiepse Bos 6, 3600 Genk, Belgium

Submitted 25 May 2004, and accepted after revision 22 September 2004

KEYWORDS
arrhythmogenic right ventricular dysplasia (ARVD); AICD; ventricular tachycardia; syncope

Abstract
A case of a young woman with multiple exercise induced syncopal episodes due to arrhythmogenic right ventricular dysplasia is described. The report emphasizes the importance of exercise induced syncope and the management is described.

© 2005 The European Society of Cardiology. Published by Elsevier Ltd. All rights reserved.

case report

An 18-year-old woman was referred for multiple exercise induced syncopal episodes occurring since the age of 16. She had been playing competitive tennis (twice/week) since the age of 8. Physical examination was within normal limits. An electrocardiogram at rest showed sinus rhythm with inverted T-waves in V1–V4 and ventricular extrasystoles with a left bundle branch block pattern (LBBB). Multiple polymorphic non-sustained episodes of ventricular tachycardia (nsVT) were recorded on 24-hour Holter and on a bicycle exercise test nsVT with LBBB pattern occurred at 140 Watts (Figs. 1–5).

Transthoracic echocardiographic examination documented a dilated right ventricular cavity with extensive regional wall thinning and regional hypokinesia consistent with arrhythmogenic right ventricular dysplasia (ARVD). There was no involvement of the left ventricle. She was treated with sotalol and participation in competitive sports was stopped. An automatic defibrillator was implanted because of syncope during limited exercise three weeks later. One month after

* Corresponding author. Tel.: +32 89 327 100.
E-mail address: wmulle0@hotmail.com (W. Mullens).

1099-5129/$30 © 2005 The European Society of Cardiology. Published by Elsevier Ltd. All rights reserved.
implantation an appropriate shock was delivered because of the occurrence of VT during limited exercise.

The patchy replacement of the RV myocardium by fatty and fibrous tissue provides a substrate for reentrant ventricular arrhythmias. Approximately 50 percent of patients with ARVD present with symptomatic ventricular arrhythmias manifest by palpitations, dizziness, and/or syncope. Patients with recurrent syncope at a young age, extensive right ventricular involvement, VT unresponsive to medical therapy, polymorphic VT with sympathetic stimulation, ECG abnormalities and survivors of sudden death should be considered for defibrillator implantation because of an increased risk of sudden cardiac death [1,2]. If this can be prevented life expectancy may be normal [3].

This case report underlines the importance of cardiac investigation in young persons with syncope during exercise.

**Figure 1** Electrocardiogram at rest. There is an absence of epsilon waves.

**Figure 2** Electrocardiogram during a bicycle exercise test.
Figure 3  Holter registration.

Figure 4  AICD registration.
References

