ASUGI
Azienda Sanitaria Universitaria Giuliano Isontina
REGIONE AUTONOMA FRIULI VENEZIA GIULIA

STUDY PROTOCOL USING FLECAINIDE/AJMALINE TEST

Azienda Sanitaria Universitaria Giuliano Isontina

BRUGADA SYNDROME is a generally hereditary disease, with autosomal dominant transmission, which exclusively involves the cardiac electrical tissue; it is characterized by syncope and sometimes by sudden cardiac death with typical electrocardiographic alterations, in the absence of evident macroscopic or microscopic pathologies affecting the heart muscle, valves or coronary arteries.

One of the characteristics of this disease is the wide "phenotypic" variability (i.e. the different clinical expression) both as regards the symptomatology and the electrocardiographic aspect.

The clinical manifestations can include a wide range of symptoms, depending on the characteristics and the degree of malignancy of the arrhythmias to which they are related. In fact, affected patients can be completely asymptomatic, present minor symptoms, such as heart palpitations or vertigo, but they can also show syncope and cardiac arrest.

Even the electrocardiographic characteristics can be variable in size and morphology and periodically normalize. The anomalies can only be evident after the administration of some medicines, in particular some antiarrhythmics such as flecainide; this characteristic can be exploited to allow the diagnosis of Brugada syndrome in cases with doubtful or negative electrocardiographic pattern in the presence of high clinical suspicion (familiarity for Brugada syndrome, patients who survived cardiac arrest without obvious causes).

The genetic basis of the syndrome was demonstrated in 1998 by the identification of mutations in the SCN5A gene, which codes for the

cardiac sodium channel. In patients with ion channel mutations, the administration of some antiarrhythmic medicines that act on sodium channels (e.g. flecainide or ajmaline) allow the electrocardiographic pattern typical of Brugada syndrome to be highlighted on the ECG.

Sodium channel blocking medicines are therefore used as a diagnostic test to identify the frustrating forms of Brugada syndrome, attributing 100% sensitivity and specificity to this test. Other Authors have reported in the literature a slightly lower sensitivity of the test with flecainide, compared to ajmaline, which however is not available in Italy.

AJMALINE TEST

The medicine is ajmaline at a dosage of 1mg/Kg to be diluted in a syringe pump to be administered as a continuous intravenous infusion over 10 minutes.

FLECAINIDE TEST

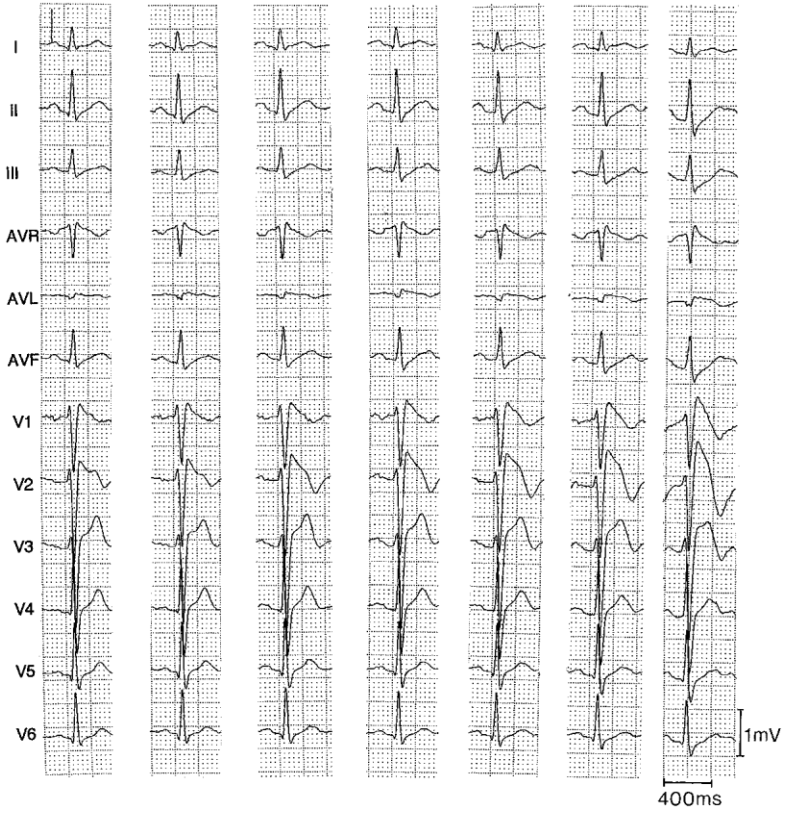
Alternatively, the flecainide test can be performed.
It is practiced by injecting the medicine intravenously with a 10-minute infusion at a dose of 2 mg/kg (max 150 mg).

The procedure is performed in Day Hospital (generally in a monitored bed in the Coronary Unit).
The test is interrupted in case of significant ECG modifications (positive test) or the appearance of ventricular arrhythmias including ventricular extrasystoles and 30% QRS widening (1).

During the test, the heart rhythm, the electrocardiogram and the vital parameters are continuously monitored by a specialized team, equipped for cardiopulmonary resuscitation.

AFTER THE PROCEDURE

After the examination, once the medicine has been eliminated (about 1 h in the ajmaline test, 2-3 h in the flecainide test) and after normalization of the ECG (if modified), it is possible to be discharged from hospital. No further steps are required afterwards. The result of the test is immediate. In general, the period necessary for functional recovery is about 15 days, in order to allow adequate healing of the surgical wound; the sutures are removed after about 10 days



ECG changes during drug administration

POSSIBLE COMPLICATIONS

The risks of the procedure are linked to the induction of ventricular arrhythmias, sometimes only symptomatic due to palpitation, but in rare cases life-threatening, which must be promptly recognized and treated. Other secondary effects are represented by transient disturbances of electrical conduction and consequent slowing of the heartbeat. For these reasons, the test requires continuous monitoring of the patient in hospital during drug administration and in the following hours.

BIBLIOGRAPHY

1. Proposed Diagnostic Criteria for the Brugada Syndrome Consensus Report. Arthur A.M. Wilde, MD, PhD; Charles Antzelevitch, et al. Circulation.2002;106:2514-2519.

DIAGNOSTIC AND INTERVENTIONAL ELECTROPHYSIOLOGY UNIT
Responsible: dr. M. Zecchin
CONTACTS
Secretariat 040 399 4865;
Pacemaker Clinic 040 399 4828
Hospitalization 040 399 4871-040 399 4899

Drafted by ASUGI's Communication, External Relations, Press Office, URP on the basis of texts provided by dr. Francesca Brun and dr. Massimo Zecchin of the Cardiolgy Department

CARDIOLOGY DEPARTMENT
Director: prof. Gianfranco Sinagra
CONTACTS
Secretariat 040 399 4865;
Pacemaker Clinic 040 399 4828; Monday-Friday 8.30-13.30
Hospitalization 040 399 4871-040 399 4899

Revision 02 – November 2022