

although its use is increasing.³ Physician's familiarity, lack of education on the benefit of ticagrelor over clopidogrel or its increase with time, higher cost, twice daily dosing, and adverse effects, among other factors, may be contributory factors.⁴ More common bleeding events or concern about the higher bleeding potential of novel agents vs clopidogrel may partly explain the better persistence with the latter compared with both novel agents. We identified clinical, eg, hypertension, and treatment characteristics, eg, oral anticoagulant use, PCI with bare metal stent only or without stenting, and ticagrelor prescription at discharge, as factors favoring cessation of discharge P2Y₁₂ receptor antagonists. Moreover, GRAPE provides novel data on factors favoring or discouraging postdischarge switching, namely ticagrelor or prasugrel at discharge and ST-segment elevation myocardial infarction presentation, respectively.

Although there is currently no generally accepted method to define and measure persistence, we used an indirect method—self-reported persistence—which, however, is commonly used and is simple and inexpensive.⁵ No adjustment was made for the healthy adherer effect. Other factors, eg, level of education, socioeconomic status, stability of family background, which were not included in our predictive model, may also impact on nonpersistence with discharge P2Y₁₂ receptor antagonists and remained unidentified.

Among ACS patients undergoing PCI in settings representative of routine contemporary antiplatelet therapy, 1-year nonpersistence rates differ according to the P2Y₁₂ receptor antagonist prescribed at discharge, being worse for ticagrelor. Early clinical and treatment characteristics may predict P2Y₁₂ receptor antagonist cessation and switching.

CONFLICTS OF INTEREST

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SUPPLEMENTARY MATERIAL



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Changes in Conduction Properties of Accessory Pathways: From Intermittent Pre-excitation to Rapid Pre-excited Ventricular Response to Atrial Fibrillation



Cambios en las propiedades de conducción de las vías accesorias: de preexcitación intermitente a fibrilación auricular preexcitada de riesgo

To the Editor,

We present the case of a 49-year-old man with left posterior accessory pathway (AP) pre-excitation in a resting electrocardiogram (ECG) recorded in 2005. He was asymptomatic at the time. A screening electrophysiological study (EPS), without arrhythmogenic drugs, conducted because the patient was a sports player, showed anterograde block of the pathway at 750 ms and absence of

retrograde conduction. The refractory period of the pathway was 680 ms with isoproterenol at 2 µg/kg/min. After the atrioventricular node reached the Wenckebach block (340 ms), atrial fibrillation (AF) was provoked, with a heart rate of 130 bpm and no pre-excitation observed. Electric cardioversion was required after persistence of AF for 15 minutes (the recordings are not available). The pathway was considered low risk and clinical follow-up was decided.

The patient was asymptomatic until 2015, when he attended the clinic for palpitations and presyncope. Atrial fibrillation with pre-excitation was observed with a shorter pre-excited RR interval of 230 ms (Figure 1A). After administration of an amiodarone bolus, the patient reverted to sinus rhythm with constant pre-excitation (Figure 1B). The findings of the EPS were once again low risk, with intermittent pre-excitation at baseline (Figure 2A), anterograde block of the pathway at 580 ms (Figure 2B) and retrograde conduction, and no changes with isoproterenol. In view

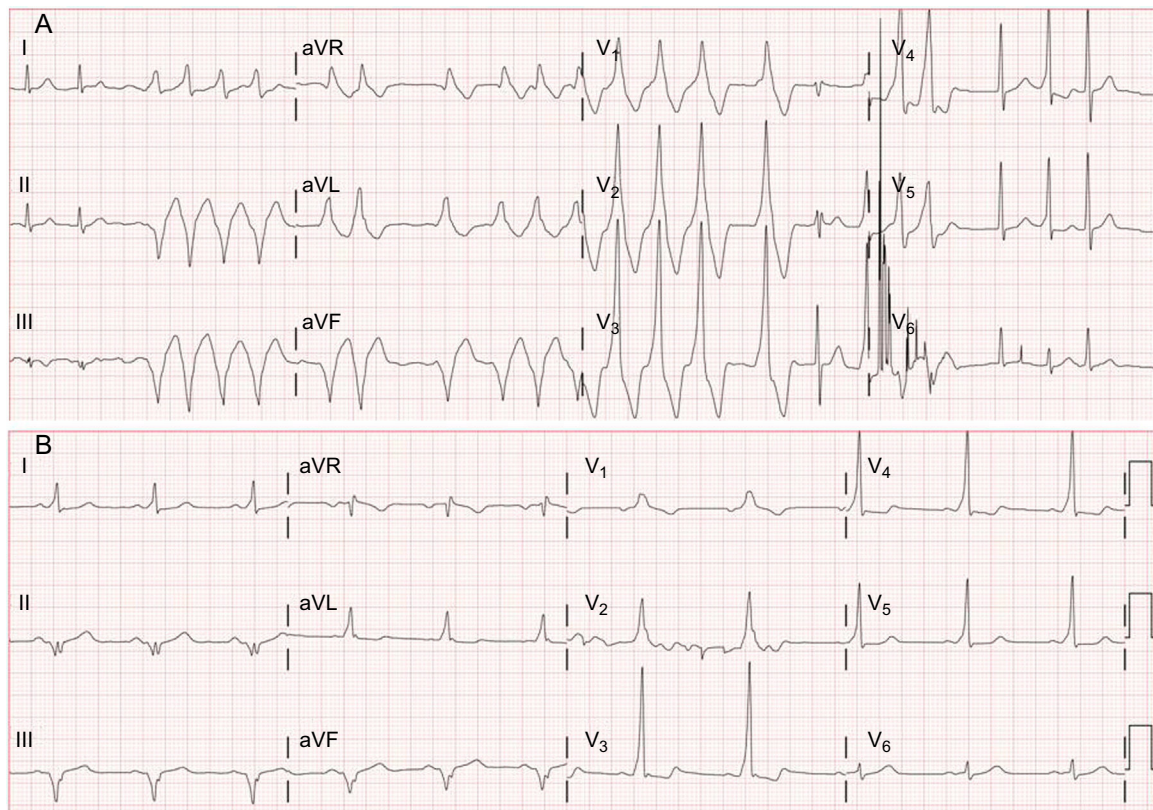


Figure 1. 12-lead electrocardiogram (ECG). A: ECG during symptoms; atrial fibrillation with different degrees of pre-excitation via left posterior pathway and RR interval shorter than 230 ms. B: Sinus ECG; pre-excitation maintained by left posterior pathway.

of the patient's medical history, AP ablation was performed with no complications.

The prevalence of pre-excitation in the general population is 0.1% to 0.3%, although it is asymptomatic in 45% to 60% of these individuals. An association has been found with sudden death resulting from ventricular fibrillation caused by rapid conduction of AF via the AP. The incidence of sudden death ranges from 4.5 episodes per 1000/patients/y of follow-up in symptomatic patients to 3.3 episodes per 10 000 patients/y in asymptomatic patients.¹ The latter incidence is very low, but it can be a major cause for concern because it is the first manifestation of the condition.

The clinical guidelines recommend ablation in symptomatic patients, but there is more debate about the management of asymptomatic patients. The 2003 guidelines suggest no treatment as a class I recommendation and catheter ablation as a class IIa recommendation, on the basis of the positive predictive value of EPS and the risk of complications. The 2015 guidelines² recommend noninvasive tests (exercise testing or Holter ECG studies, as class I recommendations) and EPS (class IIa recommendation). These tests define AP as low or high risk of arrhythmic episodes according to induction of arrhythmias, anterograde conduction capacity, or the presence of RR < 250 ms in AF. Electrophysiological study is highly sensitive but has a low specificity for sudden

death given the low incidence of this condition. Moreover, noninvasive studies have been correlated with EPS properties, but these have not been validated in prospective studies of sudden death. This represents a further limitation despite the recommendations of the guidelines. Ablation is recommended in high-risk patients because it reduces the incidence of future arrhythmias and almost completely eliminates the risk of sudden death. The term *AP with electrophysiological characteristics of risk* has led to misunderstandings when taken as a synonym of risk of sudden death because in most cases this term referred to risk of nonfatal arrhythmias.

The possibility of changes in the conduction properties of APs had already been described in the 1980s with both the worsening (loss of anterograde conduction in 26%-40% of patients) and improvement of conduction (intermittent pre-excitation at baseline with rapid conduction in AF with an RR interval < 250 ms).³ There have been reports of sudden death with apparently low-risk pathways.

In our series (1999-2000), EPS was requested for 580 patients for pre-excitation (553 underwent ablation and 28 did not as the findings in these latter patients were considered low risk and noninducible). All patients remained asymptomatic, apart from the one mentioned above.

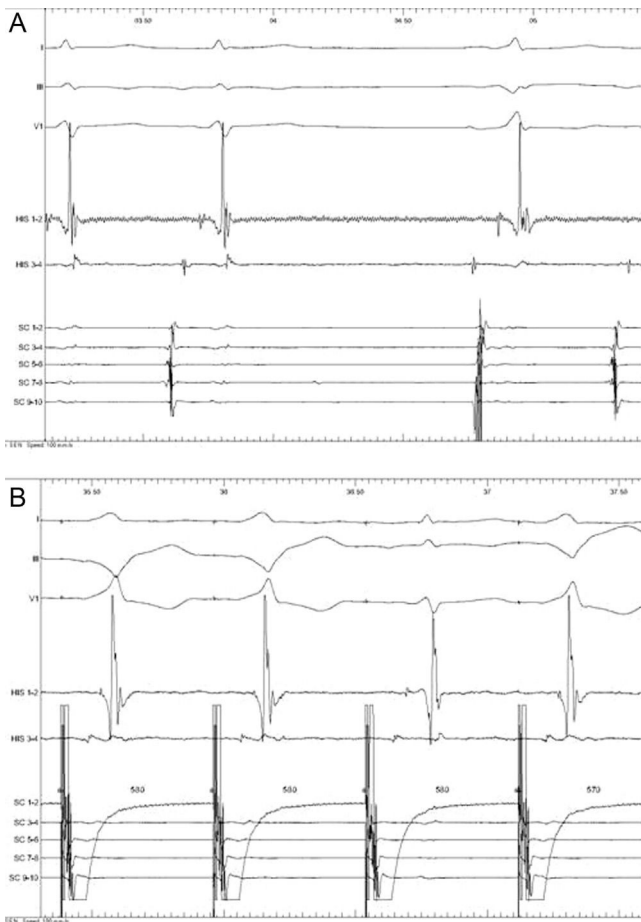


Figure 2. Intracavitary recording during electrophysiology study. DI, DIII, and V₁ leads of electrocardiogram, distal (His 1-2) and proximal (His 3-4) His bundle electrocardiogram, electrocardiograms from distal coronary sinus (SC 1-2 in the figure) to proximal coronary sinus (SC 9-10 in the figure). A: Intracavitary recordings showing intermittent pre-excitation (HV interval of 44 ms compared with HV interval of 0 ms). B: Intracavitary recordings during progressive stimulation from the distal coronary sinus to 580 and 570 ms. The first 2 beats show pre-excitation in the left posterior pathway and the third beat with the same coupling cycle shows sudden loss of pre-excitation. From this moment, intermittent pre-excitation is present.

In summary, we present a case of low-risk AP (intermittent pre-excitation, limited conduction, and with no conduction during AF) that years later had a transient change in conduction properties which could not be reproduced in EPS despite the administration of isoproterenol (possibly because of the different adrenergic state). The case raises the possibility of considering ablation during baseline EPS in all cases due to the risk of conversion in the future. Currently, we have no information on the risk of conversion or the consequences. It is therefore recommended to tailor management to individual cases and assess the option of initial direct ablation depending on the site, vascular access, experience of the operators, and the patient preferences.⁴

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Rapid Desensitization to Aspirin in Patients With Coronary Artery Disease: A Single Center Experience



Desensibilización rápida al ácido acetilsalicílico de pacientes con cardiopatía isquémica: experiencia de un centro

To the Editor,

Hypersensitivity or intolerance to aspirin occurs in 1.5% of patients with coronary artery disease.¹ Despite the availability of desensitization protocols, such procedures are rarely undertaken. Desensitization is therapeutically challenging in patients with acute coronary syndrome who require dual antiplatelet therapy to reduce adverse cardiovascular effects² and in those patients requiring stent implantation.

Aspirin hypersensitivity arises because the inhibition of the enzyme cyclooxygenase (COX) shifts arachidonic acid metabolism

toward hyperproduction of cysteinyl leukotrienes, which are the compounds that cause the observed symptoms. Aspirin hypersensitivity can manifest as exacerbated respiratory disease and urticaria or angioedema, but there has been no convincing report of immunoglobulin E-mediated anaphylaxis.³

Protocols for aspirin desensitization were developed in the 1980s and protocols for patients with coronary artery disease were introduced in 2000. The early protocols were carried out in stable patients under treatment with antihistamines and lasted several days. Current protocols take 2-5 hours and can be used with patients with unstable disease. A recent meta-analysis summarized the features of current protocols and included the results of an international survey of cardiologists; in the survey, 42% of respondents reported that they carried out ASA desensitization protocols, a figure higher than that for Spain.⁴

We have evaluated the short- and long-term efficacy and safety of the aspirin desensitization protocol used at our center. The first step is to identify the type of reaction the patient has experienced