OPINION ARTICLE

Thirteen Reasons not to Give Up Using Quinidine and to Avoid its Withdrawal from the market

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Abbreviations >

ICD	Implantable cardioverter defibrillator	**VF**	Ventricular fibrillation
LVEF	Left ventricular ejection fraction		

Since 2006, the news about the withdrawal from the market of quinidine sulfate produced by Astra Zeneca began to go around the internet. (1) More recently, the same happened with quinidine polygalacturonate (Ritmocor, Malesci, Bagno A Ripoli, Italy) in Italy where quinidine sulfate was not in circulation any more. Only hydroquinidine was available, from which its real correspondence with polygalacturonate is known; 275 mg of polygalacturonate are equivalent to 200 mg of quinidine sulfate, but, as it was mentioned before, in Italy there is no quinidine sulfate. (2) In several countries, quinidine is difficult to be found and the decision to withdraw this drug from the market was not consulted with prestigious societies in charge of gathering worldwide experts in cardiac arrhythmias. (3) This decision had a commercial basis and not a scientific one, as it is shown in the following evidences:

1. Quinidine is the only antiarrhythmic agent with significant inhibiting properties of Ito that exists in the market. (4)
2. Quinidine prevents ventricular fibrillation (VF) induced by programmed electrical stimulation (5-8) and in patients with Brugada syndrome and idiopathic VF at long-term. (8)
3. Quinidine is effective to avoid arrhythmic storm in Brugada syndrome (6, 7), and idiopathic VF, (9) apart from reducing appropriate shocks of the implantable cardioverter defibrillator (ICD) which makes more bearable the coexistence with the equipment.
4. Quinidine could be the indication in asymptomatic Brugada syndrome with positive electrophysiologic study, since more recent evidences have not shown that these cases could be risky, (9, 10) generating an unnecessary expense due to ICD implantations which will never work (only 1% per year of these patients will have a spontaneous VF) and complications related to the implantation (prevalence of 28-32% in young patients). (7)
5. Quinidine may represent a temporary state until ICD implantation in young patients with short QT syndrome. (11)
6. Oral quinidine may offer an alternative to ICD in old asymptomatic patients with short QT syndrome and negative history of sudden cardiac death. (12)
7. Belhassen et al. have used quinidine successfully for more than 20 years in idiopathic VF. (13)
8. Quinidine and verapamil used together may reduce afterdepolarizations produced by class I and II antiarrhythmic agents. Afterdepolarizations induce torsade de pointes, apart from preventing high ventricular frequencies that may be generated due to vagolytic effect of quinidine. (4)
9. The aforementioned combination may be compared with sotalol in the prevention of atrial fibrillation recurrence after electrical cardioversion. (4)
10. Quinidine for pharmacological cardioversion of atrial fibrillation is safe and effective (successful in 84% of the cases) in patients with coronary disease and recent myocardial revascularization or percutaneous coronary intervention, even with previous myocardial infarction; besides, this kind of cardioversion is also safe and effective in patients with valvular disease who underwent valve replacement with revascularization or without it and in other structural heart diseases already operated. (14)
11. According to the biggest series of pharmacological cardioversion with quinidine published up to now (501 patients), the risk of proarrhythmia is minimized if the following factors are controlled (14):
    - LVEF ≥ 35%.
    - Absolute QT interval < 500 ms.
    - Serum potassium > 4.3 mEq/L.
    - Concomitant use with verapamil or beta blockers.
12. A significant part of lethal complications observed before the eighties could have been associated with the combination quinidine-digoxin, since quinidine reduces renal tubular secretion of the digital and there is a need to reduce the dose of digoxin in up to 50%, so that some complications could have been secondary to lethal digitalis toxicity due to an increase in the concentration of this drug. Besides, high doses of digoxin (800-1800 mg/day) were used in old studies. (4)
13. Quinidine is indicated as the first option of pharmacological treatment of class IA of antiarrhythmic agents in a pregnant woman with ventricular and supraventricular tachycardias, atrial fibrillation in particular, atrial flutter and atrioventricular reciprocal tachycardia. Quinidine is useful in the woman that is feeding the baby due to the concentration of it in the mother's milk is less than 70% in comparison with the mother's blood. (15) There is certainty that the use of this drug is safe during pregnancy, the use is backed by a worldwide medical experience

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of more than 70 years. Recently, quinidine was used with success to control an electrical storm in a young pregnant woman with Brugada syndrome. (16)

With the advent of new antiarrhythmic agents, the sales of quinidine are reduced; however, exposed evidences allow us to conclude that there will always be consumption of this substance, especially among certain subgroups of patients in which this drug is the only option of treatment with implications for life in absence of the drug. In this article we support authors that through their work, predominantly in English and hardly nonexistent in Spanish, are opposed to the market withdrawal of quinidine.

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