disease, all of them except for fluvastatin, pitavastatin, and rosuvastatin, interact with anti-HIV drugs (via CYP).

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About Bradycardia and Secondary Heart Failure Induced by Ivabradine in a Patient With HIV. Response

A propósito de bradicardia e insuficiencia cardiaca secundaria a ivabradina en paciente con VIH. Respuesta

To the Editor,

We thank Morales-Martínez de Tejada for his considerations regarding our letter,[1] and would like to add the following comments. The episode of ivabradine intoxication occurred when the patient was receiving carvedilol, which may have further complicated the situation. The temporal relationship between ivabradine exposure and its discontinuation was clear, and this drug is contraindicated in all patients with human immunodeficiency virus (HIV) infection who are taking protease inhibitors, with or without carvedilol.

As eplerenone is mainly metabolized by CYP3A4,[2] it should not be administered in combination with potent inhibitors or potent inducers of this enzyme. Our patient had begun to receive the drug 2 years earlier, after an acute myocardial infarction and, as her left ventricular ejection fraction remains low, she continues to take it. In follow-up visits prior to and after the aforementioned episode, she was always found to have normal serum potassium concentrations. Eventually, the decision was made to simplify her antiretroviral therapy and the viral protease inhibitors were discontinued. As Dr. Morales-Martínez de Tejada points out, emtricitabine and tenofovir are mainly eliminated by the kidneys, and caution should be exercised when they are administered together with medications, such as aspirin, which are removed by active tubular secretion. However, the combined use of these drugs is not formally contraindicated.[3]

Finally, pharmacogenetic studies may have a number of applications in the treatment of cardiovascular diseases and could provide solutions to these problems. However, we still have much to learn about their usefulness before incorporating them as a regular part of clinical decision-making.[4] Meanwhile, we should be on the alert for possible interactions among the drugs we prescribe to our patients and study them conscientiously.

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Systemic Thrombolysis for High-risk Pulmonary Embolism Versus Percutaneous Transcatheter Treatment

Trombolisis sistémica de la embolia pulmonar de alto riesgo frente al tratamiento percutáneo

To the Editor,

Systemic thrombolysis for primary reperfusion therapy is the treatment of choice for patients with high-risk pulmonary embolism (PE) (ie, those with shock or hypotension). If thrombolysis is contraindicated or has failed, surgical embolectomy or percutaneous catheter-directed treatment is recommended. However, when systemic thrombolytic therapy is contraindicated, local administration is also contraindicated, in which case transcatheter procedures should be used without local thrombolysis.[1] Sánchez-Recalde et al[2] presented a series of 8 PE patients treated at their hospital. Seven patients underwent percutaneous treatment, of whom 4 also received local catheter-administered alteplase, although this approach is contraindicated for thrombolysis. According to the recommendations of the clinical guidelines, traumatic brain injury is an absolute contraindication and thus alteplase should not have been used. The

patient with this injury died of intracranial hemorrhage. The other 3 patients who received local thrombolytic therapy were postoperative patients, but the authors did not specify how much time had passed since the surgery; this information is needed to consider the contraindication for thrombolytic therapy as absolute or relative. Six of the patients had cardiorespiratory arrest, but the authors did not indicate which patients had experienced this event. Torbicki[3] has reported that there are very few contraindications to the use of thrombolysis in critical situations, including recent surgery, and that provision should be made to treat bleeding complications immediately. In the setting of cardiac arrest, the benefit of the rapid systemic administration of thrombolytics can be enhanced by the simultaneous treatment of venous thrombi, and the prevention of patient transfer to the catheterization laboratory and the potential complications of percutaneous procedures. The other hospital death described in their series was attributed to rethrombosis after suspension of anticoagulation therapy to repair a complication arising from the percutaneous procedure.

Currently, there is a lack of reliable studies on systemic thrombolysis vs catheter-directed thrombolysis for high- and intermediate-risk PE or on the effect of different catheter-directed percutaneous techniques on survival and bleeding complications.[4] In the absence of reliable studies, it seems advisable to adhere to the recommendations of the clinical guidelines, which consider systemic thrombolysis the treatment of choice for high-risk PE unless absolutely contraindicated. It should be borne in mind that the guidelines state that if thrombolytic therapy is contraindicated, local administration is also contraindicated. Finally, recent surgery could be considered to be a relative contraindication for systemic thrombolysis only in immediate high-risk life-threatening PE and only if provision has been made for potential bleeding complications and their immediate treatment. In the latter setting, a reasonable strategy could be to use low-dose systemic alteplase (50 mg/2 h), which seems to have similar efficacy and lower bleeding risk than the approved standard systemic dose of 100 mg/2 h.[5]

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Systemic Thrombolysis for High-risk Pulmonary Embolism Versus Percutaneous Transcatheter Treatment. Response

Trombolisis sistémica de la embolia pulmonar de alto riesgo frente al tratamiento percutáneo. Respuesta

To the Editor,

We read the letter by Pampín-Huerta et al regarding our article[1] with interest. According to the existing evidence, systemic thrombolysis is the treatment of choice for massive pulmonary embolism (PE). Our series included patients with an absolute contraindication and, under these circumstances, the guidelines recommend 2 alternative options: surgical or percutaneous embolectomy, depending on the experience and facilities in each center. Given that the means for surgical treatment are seldom available, even in our center, which is a major hospital in Madrid, Spain, a percutaneous intervention was performed.

Although there are no absolute contraindications for thrombolysis in critical situations, routine clinical practice demonstrates the opposite to be true. In fact more than 60% of the patients with massive PE do not receive this treatment,[2] perhaps because the risk of major bleeding is over 20%, including the 3% risk of intracranial bleeding, and increases exponentially in those patients who are most unstable.[3] Thus, although the evidence on transcatheter treatment is limited, at the present time, it is the only valid alternative in patients with massive PE in whom thrombolysis is contraindicated or who are at high risk for bleeding.

Common sense tells us, and different registries demonstrate,[4] that 1 fourth or 1 fifth of the in situ systemic dose in the thrombus is associated with a minor bleeding risk; this, added to the fact that the percutaneous approach enables the fragmentation and aspiration of the thrombus, may prove to be vital in cases of central PE.

At the present time, it is unusual for a single physician to assess the indication and decide on the systemic thrombolysis dose in a case of intermediate- to high-risk PE. The current trend in final decision-making concerning thrombolytic, percutaneous, or surgical treatment involves urgent consensus on the part of a multidisciplinary team in which an interventional cardiologist or radiologist plays an important role.[5,6]

CONFLICTS OF INTEREST

A. Sánchez-Recalde is Associate Editor of *Revista Española de Cardiología*.