



## Editorial

# Pulmonary Embolism and Comorbidity

## Embolia pulmonar y comorbilidad



Venous thromboembolism (VTE) is considered the third most common vascular disease, and includes pulmonary embolism (PE) and deep vein thrombosis (DVT). Its incidence has been increasing in the last decade, ranging between 39 and 115 cases per 100,000 inhabitants for PE and between 53 and 162 cases/100,000 inhabitants for DVT.

PE is responsible for up to 300,000 deaths per year in the United States. In the European Union, a study conducted in six countries with a population of 454.4 million revealed that more than 370,000 deaths were related to VTE.<sup>1</sup>

The estimated number of VTE-related deaths/year in the European Union is more than double that of deaths from breast cancer, prostate cancer, AIDS, and traffic accidents combined.<sup>2</sup>

In our country, the population presents an aging process in recent decades, accompanied by greater longevity. The ETV is up to eight times more frequent in the adult population  $\geq 80$  years, compared to those of the 5th decade of life. All this is accompanied by an increase in cardiovascular, metabolic, respiratory diseases, etc.<sup>3</sup> Neoplastic disease increases in the adult population and ETV is up to nine times more frequent in patients with active cancer compared to the general population. Its presence is associated with the interruption of oncological treatment, a decrease in quality of life, and an increase in comorbidity and mortality. All this is accompanied by an extension of hospital stays and health care expenses.

An epidemiological study carried out in our country, between 2001 and 2018 in patients who were hospitalized for VTE, has concluded that these patients are older, have greater comorbidity and a decrease in mortality.<sup>4,5</sup>

The global pandemic by COVID-19, which originated in China in 2019 and in the European Union and Spain in 2020, has been accompanied by an increased risk of VTE. The estimated global incidence of VTE in patients hospitalized for COVID-19 was 17%. Bleeding events were observed in 8% of patients.<sup>6</sup>

In relation to comorbidity, patients with PE frequently have important comorbidities, such as neoplasms or chronic cardiorespiratory diseases, which can favor the development of this condition and also determine a worse short-term prognosis. A significant increase in the number of comorbidities has been observed over time.<sup>5</sup> Hypertension, diabetes, obesity, cancer and chronic kidney disease have increased significantly over time, some of which are known risk factors for PE.<sup>5</sup>

In-hospital mortality due to PE has decreased in recent years, being higher in patients with greater comorbidity analyzed using the Charlson comorbidity index (CCI).<sup>5</sup> There are not many studies on the impact of CCI in patients with VTE as a tool to predict survival.<sup>5,7-9</sup> The increase in comorbidity analyzed using the CCI is capable of predicting greater short- and long-term mortality in patients with acute PE.<sup>7</sup> Patients with PE associated with cancer present greater comorbidity assessed by the CCI compared to patients with PE without cancer.<sup>7</sup>

This increase in the incidence of PE in hospitalized patients could be explained by the increase in the number of patients with significant comorbidities with a higher risk of developing PE, the greater knowledge of the disease and the use of more precise diagnostic techniques. On the other hand, the greater use of therapies, more effective interventions and better adherence to clinical guidelines have contributed to improving the prognosis of PE in recent years.<sup>1,5,10</sup>

However, there is currently a trend towards overdiagnosis of PE<sup>11</sup> which could be justifying a false decrease in the fatality rates of PE. Proof of this increased incidence and greater knowledge of PE is the publication in recent years of numerous clinical guidelines by several national and international societies on the clinical management of VTE,<sup>1,3</sup> with recommendations regarding its prevention and treatment. At the international level, the Computerized Registry of Thromboembolic Disease (RIETE)<sup>12,13</sup> should be highlighted. Despite the greater clinical evidence of PE, there are different scenarios with certain limitations in the available literature and the clinical practice guidelines do not provide solid recommendations. An example of this is cancer patients,<sup>14,15</sup> in which the prescription of thromboprophylaxis in high-risk patients is not well established.

This disease continues to be a clinically significant cause of mortality, which is why greater awareness and application of preventive measures is necessary. The incidence of PE and the mortality rate due to this disease increase with age,<sup>1,5</sup> making it essential to study the trend of patients with PE.

It is essential to continue the study of VTE and provide more clinical evidence, through the different scientific societies and the RIETE registry. The overarching goal is to expand knowledge of the epidemiology, risk factors, comorbidity and treatment to improve the approach to this disease.

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## Authors' contribution

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