



## EDITORIAL

## What is the clinical significance of isolated subsegmental pulmonary embolism?



## Qual a revelância clínica da embolia pulmonar subsegmentar isolada?

In this original article, Garcia-Sanz et al. assess survival prognosis in a group of patients diagnosed with pulmonary embolism (PE) by chest computed tomography (CT). The study included 313 PE patients, 56% were women and the median age was 70 years old. The objective was to describe the clinical profile of patients with PE and to analyze their prognosis based on the extent of the disease.<sup>1</sup>

The epidemiology of PE is difficult to determine because it can be asymptomatic or result in sudden death. Only a very small percentage of fatal cases are diagnosed while the patient is alive. PE is a major cause of morbidity and mortality in developed countries.<sup>2</sup> Since the incidence of deep venous thrombosis (DVT) increases with age, it is expected that more cases of PE will be diagnosed in the future.

Within the study group, 22% of patients had been diagnosed with cancer prior to PE. Although venous thromboembolism (VTE) is considered a consequence of the interaction between persistent risk factors and the temporal trigger factors, cancer remains an important risk factor for all-cause mortality after episodes of VTE. In the present study no significant difference was found between the presence of cancer and the extent of disease. Dyspnea was the most common symptom in patients with central PE (68% of cases) and pain was also a common symptom in segmental and subsegmental PE (25% and 7%, respectively). PE patients frequently present with chest pain which is usually caused by pleural irritation due to distal embolisms, causing pulmonary infarction.<sup>3</sup> Rapid onset of dyspnea is usually due to central PE and may be associated with angina-like pain reflecting right ventricle ischemia.

The authors report that subsegmental PE accounted for 7% of cases; these patients were younger, had lower

comorbidity and none of them presented proximal deep venous thrombosis (DVT). This contrasts with the reported presence of DVT in 70% of patients with proven PE.<sup>4</sup>

This calls into question the clinical significance of isolated subsegmental PE on CT. This finding was present in 9.4% of those who underwent a CT.<sup>5</sup> The positive value is low and an interobserver variation is high at subsegmental level.<sup>6</sup> In this situation, is advisable to perform compression venous ultrasonography to ensure that the patients does not have DVT that it should be treated. This echography assessment showed DVT in 30–50% of patients with PE.<sup>7</sup>

The incidental finding of clinically unsuspected PE on CT is a growing problem, that occurs in 1–2% of thoracic CT examinations, more often in patients with cancer, but also in patients with heart failure or atrial fibrillation.<sup>8,9</sup> Additional testing may be needed to confirm PE in case of isolated subsegmental thrombi.<sup>10</sup>

The authors reported a 30 days mortality rate of 7%, attributable to PE in 3.5% of cases. None of the patients died as a result of subsegmental PE. They also found that factors independently related to a higher likelihood of mortality were cancer diagnosis and higher comorbidity. In the Spanish registry RIETE, immobility due to neurological involvement, presence of cancer and old age were independently correlated with increased short-term mortality, following an episode of VTE.<sup>11</sup>

It is an accepted fact that acute right ventricular failure is a major determinant to predict prognosis after acute episode of PE. The presence of sustained arterial hypotension and cardiogenic shock is indicative of poor prognosis in the short term follow-up. García Sanz et al. do not provide information on the distribution of high-risk patients in relation to the extent of PE and the influence it could have on RV failure in the short-term prognosis. Possibly this is inherent in the design of the study – a

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retrospective design and single center – one of the major limitations.

The authors discuss the uncertain clinical significance of subsegmental PE, suggesting that the prognosis is associated more with the presence of accompanying disorders than the extent of the disease. Although there have been many advances in the management of PE, a number of justifiable doubts persist.

In a patient with isolated subsegmental PE without proximal DVT, anticoagulation decision should be based on a balance between the risk of bleeding and diagnostic probability. The original article under this editorial brings additional experience and helps us to individualize decisions.

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