

# The importance of D-DIMER values in COVID-19 patients with pulmonary thromboembolism in the two first years of the pandemia

## Abstract

The COVID-19 pandemic has posed a big challenge to the healthcare community and many stakeholders. According to clinical studies, D-Dimer assays may be the “first line” of technical screening in symptomatic outpatients with suspected venous thrombosis or pulmonary embolism. This same affirmation may be applied to COVID-19 as its cause. In this study the comparison of the first two years of the COVID-19 appears the tendency of treatment decision making based in D-Dimer levels being a less important parameter. Many patients with COVID-19 have been observed to present with prominently elevated D-Dimers, findings which have been postulated to reflect underlying thromboembolic burden, which have been associated with increased mortality among such patients.

**Keywords:** thromboembolism, COVID-19, intensive care unit, anticoagulation, pulmonary

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André Luis Valera Gasparoto,<sup>1</sup> Tania Leme da Rocha Martinez,<sup>2</sup> Ana Paula Pantoja Margeotto,<sup>2</sup> Adenilton Rampinelli,<sup>1</sup> Anita L R Saldanha,<sup>2</sup> Eduardo Neris,<sup>1</sup> Thomaz Braga Ceglias,<sup>1</sup> Raoni Rego Godinho,<sup>1</sup> Otávio Castilho<sup>1</sup>

<sup>1</sup>Intensive Care Unit, BP - A Beneficência Portuguesa de São Paulo, São Paulo, Brazil

<sup>2</sup>Nephrology Department, BP - A Beneficência Portuguesa de São Paulo, São Paulo, Brazil

**Correspondence:** Tania Leme da Rocha Martinez, BP, Rua Comandante Ismael Guilherme, 358 - - Jardim Lusitânia, 04031-120 - São Paulo - SP, Brazil, Tel 55 11 98323-9863, Fax 55 11 3842-3789, Email tamar@uol.com.br

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**Abbreviations:** ICU, intensive Care Unit; PTE, pulmonary thromboembolism

## Introduction

### Aim

The aim of the study was to evaluate whether the prevalence of pulmonary thromboembolism (PTE) was higher in 2021 compared to 2020 of patients hospitalized by COVID-19 in an Intensive Care Unit (ICU).<sup>1-7</sup>

## Methods

The methods were based on retrospective and comparative analysis among patients hospitalized by COVID-19 in an ICU since the beginning of the pandemic. All patients were receiving prophylactic or therapeutic anticoagulation. Patients with PTE were those confirmed by chest angiotomography or in those who did not have transport conditions to perform the ct angiography, but presented high probability for PTE based on echocardiographic criteria (significant increase in pulmonary artery systolic pressure and right ventricle dysfunction). All patients with presumed PTE had echocardiogram on ICU admission with parameters within the normal range. A total of 110 patients were evaluated in 2020 and 115 patients in 2021. The comparison of the two groups of patients between the years of 2020 and 2021 were comparable as to age groups, sexes and occurrence of all the mentioned risk factors.

## Results

The results observed that 8.8% (n=8) patients admitted in 2020 presented confirmed or presumed PTE. In 2021, 39% (n=45) had a presumed or confirmed diagnosis of PTE.

## Discussion

Some hypotheses for these results are: most patients in 2020 received full anticoagulation due to the elevated D-dimmer, even if there is no confirmation or echocardiographic changes. In 2021, after studies robustly demonstrated that full anticoagulation increased the risk of major bleeding, prophylactic anticoagulation (regardless of laboratory value of D-dimmer) became the choice. Only patients with presumed or confirmed diagnosis of thrombosis are receiving full anticoagulation.<sup>8-10</sup>

## Conclusion

Can the new strains be more thrombogenic? Certainly they are variables that need to be further studied, despite the small number of patients evaluated.

## Acknowledgments

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## Conflicts of interest

No conflict of interest.

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