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Early View

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Title: Prevalence of pulmonary embolism on hospital admission in COVID-19 patients: Is there a role for pre-test probability scores and home treatment?

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To the Editor,

We read with interest the research letter recently published by Jevnikar *et al.* about the prevalence of pulmonary embolism (PE) in patients with coronavirus disease (COVID-19) at the time of hospital admission [1]. In this prospective multicenter study, all consecutive adult outpatients that were hospitalised with a diagnosis of COVID-19 in three tertiary French hospitals between April 15th and May 23rd 2020 underwent computed tomography pulmonary angiography (CTPA). Only patients with contraindications to the exam (mainly due to contraindication for iodinated contrast administration) were excluded. The strength of this study is that it finally provides precise information regarding the actual prevalence of PE in hospitalized COVID-19 patients. Over the last year, we have been bombarded almost daily with an infinity of data on the increased rate of venous thromboembolism (VTE) in COVID-19 patients, but all the studies available so far had the insurmountable flaw that CTPA was performed only in a minority of cases and mainly in patients with clinical suspicion of PE [2]. Another flaw of such previous studies was that CTPA was performed at various time-points during hospitalization and therefore it was not possible to establish whether PE was an actual complication of COVID-19 or a consequence of the hospitalization itself. In this scenario, the report of Jevnikar *et al.* finally allows us to claim with substantiation that the prevalence of PE is high even at time of hospital admission in patients with COVID-19.

Nonetheless, we believe that this study, although important for the epidemiological reasons mentioned above, still does not provide a concrete contribution to the physicians that have to decide, on the clinical ground, whether ordering or do not ordering CTPA in patients with COVID-19. Certainly, the indiscriminate execution of CTPA cannot be the routine diagnostic regimen to use in these patients. We think that the time of establishing a definite diagnostic algorithm for PE in COVID-19 patients is mature. In the conclusion of their article, Jevnikar *et al.* suggest to limit CTPA to patients who require supplemental oxygen and have high D-dimer concentrations. We wonder whether we should also use the pre-test probability scores recommended by international

societies for diagnosing PE. In this context, we would be interesting to know how many of the patients of Jevnikar *et al.* were at high risk of PE based on the Wells or Geneva rules, or in how many of them PE could be ruled-out using the Pulmonary Embolism Rule Out Criteria (PERC) or the YEARS algorithm [3].

Another interesting point raised by the article of Jevnikar *et al*. is that PE was more common among subjects with a longer time from the onset of COVID-19 symptoms to hospital admission. This is biologically plausible, since it is likely that these patients have been exposed for a longer time to risk factors for VTE, such as reduced mobility, acute infection, and respiratory failure. For this reason, we believe that, in a study on the prevalence of PE on hospital admission, it is mandatory to know which treatment was administered to patients before hospitalization, with particular attention to the use of anticoagulants. Indeed, although there is not a general consensus on the use of anticoagulants as home treatment in COVID-19 patients, it is known that these medications are commonly prescribed. Obviously, their use at home might affect the prevalence of PE at the time of hospital admission.

CONFLICT OF INTERESTS

The authors declare no conflicts of interest in association with this study.

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