

Review of: "Risk Factors of Pulmonary Embolism in Patients with Acute Exacerbation of Chronic Obstructive Pulmonary Disease: A retrospective clinical study"

Nathan Murray¹, Murtaza Akhter

¹ Hospital Corporation of America

Potential competing interests: The author(s) declared that no potential competing interests exist.

Review of:

Risk Factors of Pulmonary Embolism in Patients with Acute Exacerbation of Chronic Obstructive Pulmonary Disease: A retrospective clinical study.

The authors performed a retrospective study of acute COPD exacerbation patients and compared risk factors associated with those with vs without concomitant pulmonary embolism.

Strength:

This is an important topic, and a common occurrence in the hospital. The authors looked at multiple variables.

Major Issues:

They state as an objective to reduce the rate of missed PE. However, a retrospective analysis that by definition has confounders does not help guide what to do next for patients prospectively. For example, how many of the patients "without PE" actually DID have PE but it just wasn't diagnosed? Separating groups simply based on final diagnoses of COPD vs COPD with PE leads to major bias – of course, the latter group will be sicker. It makes sense that multiple 'risk factors' were more prominent in the latter group compared to the former group, but this per se does not tell me what I should do next to diagnose patients. It is easy enough to say that if the dimer is elevated, the patient should be scanned. But which AECOPD patients should I order a dimer on? This is the critical question we all face when working clinically. The authors state in their conclusion that "patients hospitalized for AECOPD should have multi-slice spiral computed tomography pulmonary angiography (CTPA) to determine whether they present PE complications as soon as possible when combined with chest pain, pulmonary heart disease, prolonged immobility ≥ 3 days, plasma D-dimer levels higher, and the times of acute exacerbations has increased significantly in the last year." But just elevated d-dimer per se is reason enough to scan, and all the already-present algorithms already state this. Again, what's more critical is, which patients do we even workup for PE? Perhaps the focus should be on the patients that are worsening (more exacerbations or worsening mMRC), but many COPD patients worsen just from their COPD alone, so this will not be very specific.

Also, how were the signs and symptoms collected? Was it based on a chart review? Lab values were retrieved from the hospital, but where were the signs and symptoms collected from? As we know, these are often documented poorly, and that creates its own bias.

Were any of these patients on anticoagulation? That would play a huge role. Did any of them have prior history of VTE?

There is no correction for multiple hypothesis testing. With this many factors looked at, in only a sample of 47 patients total with PE, the p values will be far lower after accounting for this. A Bonferroni correction itself would eliminate some of the variables as no longer being significant.

Minor Issues:

Grammar issues. These can be edited, but major content changes come first.

mMRC should be written out in full words before the acronym is used in isolation.

Please provide citations for: “clinical symptoms of PE are similar to the deterioration of COPD, which makes it easy to be ignored in patients with AECOPD and lead to poor prognosis.”

Is there a reason for why “Active tuberculosis, pulmonary fibrosis, or bronchiectasis patients were excluded from this study”? Surely those patients can also have COPD with PE.

When stating that ECG findings were different, it would benefit the paper to state the specific EKG findings within the text (not just the table).

Consider organizing the remaining risk factors after logistic regression in order of statistical significance. Please also note the major point brought up above, namely, the need to account for multiple hypothesis testing.

The first paragraph of the discussion would be even more helpful to have in the introduction.