Letters to the Editor

D-Dimer and COVID-19

From
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Editor:

In their article published online in *Radiology* on August 13, 2020, Dr Schalekamp and colleagues described the development of a risk score for patients who are more likely to develop severe coronavirus disease 2019 (COVID-19), with resultant worse outcome (1). In this retrospective analysis, Dr Schalekamp and colleagues point to findings in laboratory and chest radiographic reports combined with medical history and underlying morbidity. Interestingly, the plasma D-dimer values are not mentioned in this report.

Based on a study in Wuhan, and reference 6 in their article, the plasma D-dimer levels were shown to be highly correlated with unfavorable outcomes (2). This was further confirmed by several other studies, summarized in a subsequent report, and included the first prospective data on the use of plasma D-dimer in patients in intensive care and the direct link with development of pulmonary embolism (3). Some of the authors of the present article also reported on the high incidence of vascular thrombotic complications in patients in intensive care (4).

Was plasma D-dimer not available routinely, or was this biomarker not considered? If plasma D-dimer measurements were not considered routinely, this may be a shortcoming for this risk assessment tool given that plasma D-dimer consistently demonstrated high correlation with outcomes and has implications for thrombotic risk management. Alternatively, it would be useful to reassess this risk score by considering plasma D-dimer values, which should probably be performed as part of the prospective validation of the risk score.

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Response

From
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We acknowledge that D-dimer carries important prognostic value for the prediction of poor outcome in patients with COVID-19 as demonstrated by the literature presented by the responder (1–3).

At the start of the first wave of COVID-19 in the Netherlands there was limited knowledge about the potential prognostic information of D-dimer levels, and determination of D-dimer was not part of the routine workup of patients suspected of having COVID-19 in our emergency departments. We explicitly mentioned this in our methods and discussion (4). There were of course instances that D-dimer was administered during the course of the hospitalization, especially in the most ill patients. However, these values were not included in our risk model because of the selective nature of data accrual and timing; we only considered laboratory values taken at emergency department presentation.

The correlation between C-reactive protein and D-dimer is well known, also in patients with COVID-19 (5). Furthermore, by now a number of publications reported an association between degree of elevation of D-dimer, severity of disease, rate of complications, and prognosis during COVID-19 infection as nicely summarized in a systematic review by Vidali et al (6).

Whether D-dimer would add prognostic information in our risk model beyond C-reactive protein remains to be investigated. However, based on the evolving knowledge, we therefore would advise to include D-dimer, among possibly other risk factors, as a parameter in the development of future prognostic models in patients with COVID-19.

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The correct author list should have been listed as follows: **Matthijs Oudkerk, Harry R. Büller, Dirkjan Kuijpers, Sytse F. Oudkerk, and Edwin J. R. van Beek.**