

CORRESPONDENCE

Universal Do-Not-Resuscitate Orders, Social Worth, and Life-Years

TO THE EDITOR: Bledsoe and colleagues (1) recommend against a blanket approach to deciding not to attempt resuscitation. In the scenario they describe, all patients with a particular diagnosis—such as coronavirus disease 2019 (COVID-19)—would have a do-not-resuscitate (DNR) order. We would

like to reflect on this position. Implementation of universal DNR orders has been suggested during the COVID-19 pandemic in order to maximize resources and limit possible exposure to health care professionals (2). To maximize resources, we believe that there is a very important step between current practice and the draconian decision to implement universal DNR orders, namely, unilateral DNR orders. In such an approach, the decision not to resuscitate is made by the attending physician.

Bledsoe and colleagues suggest that unilateral DNR decisions rarely played a role before the COVID-19 pandemic (3). However, in the Netherlands, such decisions have been an everyday option for several decades. The attending physician is allowed—or, in fact, morally obligated—to make this decision if cardiopulmonary resuscitation (CPR) is not considered potentially successful. This is frequently the case in fragile patients and those with an infaust prognosis. This practice is based on the belief that decisions about resuscitation should be based on not only the patient's values, goals, and beliefs but also the medical usefulness of the treatment (4). A unilateral DNR decision is preferably made by a physician with whom the patient has had a long-term relationship.

Decisions about DNR orders should be explained to patients and relatives with patience and empathy, emphasizing that all reasonable efforts to cure the patient will be used and that the patient will be cared for if cure is no longer possible. A large subsequent nationwide Dutch study on end-of-life decision-making practices showed that in 1990, a total of 37% of all DNR decisions were made without involving the patient and their relatives (5). This proportion fortunately has decreased markedly to 4% in 2001 and 1% in 2010, which shows that reaching a DNR decision on the basis of medical futility is perfectly compatible with appropriate involvement by the patient and their relatives (5).

The COVID-19 pandemic has made clear that interventions aimed at prolonging life, such as CPR and mechanical ventilation, are not always in a patient's best interest. As physicians, we should take the lead in completing DNR orders in patients in whom CPR is not considered potentially meaningful. Doing so may help better allocate resources without undermining patient-centered care.

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Autopsy Findings and Venous Thromboembolism in Patients With COVID-19

TO THE EDITOR: Wichmann and colleagues' case series from Germany (1) was a welcome addition to the growing literature on the postmortem pulmonary histologic characteristics of lung disease related to severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2), even though the finding of diffuse alveolar damage in terminal cases does little to illuminate the process in its earlier stages. However, I am concerned about the authors' emphasis on the aspect of venous thromboembolism (VTE) as it relates to their findings. This term appears in the title of their article and dominates the concluding paragraph. If assimilated without context by the clinical community, this extract from the study's results could further fuel the pervasive but unsubstantiated belief that coronavirus disease 2019 (COVID-19) is a uniquely hypercoagulable state.

Case 1 in the study is a patient who had an out-of-hospital cardiac arrest, with pulmonary embolism (PE) found to be the likely cause. This is unsurprising: Well before the emergence of SARS-CoV-2, PE had been recognized as the most common non-cardioaortic cause of unsuccessfully resuscitated community arrests (2). The other 3 PE cases in the series were managed in the intensive care unit, and all of these patients were obese and mechanically ventilated. The authors did not mention whether these patients received appropriate VTE prophylaxis, which remains a global deficiency from which Germany is not exempt.

The antemortem detection rate of incidental PE in general intensive care unit populations receiving mechanical ventilation can approach 20% (with obesity being a risk factor) and exceeds that figure in autopsy studies. However, this finding has not been linked to inferior outcomes clinically and has rarely been deemed a precipitant of death pathologically (3). Death with diffuse alveolar damage is almost universally accompanied by pulmonary vascular thrombosis (including macrovascular disease). As such, the mere presence of thrombi as reported in the series by Wichmann and colleagues should

not be construed as a unique feature of SARS-CoV-2 lung disease when diffuse alveolar damage is present. Furthermore, SARS-CoV-2 hardly stands out from other viruses in regard to postmortem VTE. Patients in a study of 8 autopsies done on fatal H1N1 influenza cases had a higher percentage of PE (5 of 8 patients [63%]) than did those in Wichmann and colleagues' series (4 of 12 patients [33%]) (4).

Although severe COVID-19 promotes hemostatic dysregulation, it is not the only critical illness to do so. Wichmann and colleagues' findings do not advance the theory that critically ill patients with COVID-19 are unusually predisposed to VTE and therefore merit an unprecedented approach to anticoagulation. Yet, the authors imply otherwise, invoking an international guidance document (5) as corroboration even though the document's expert author panel voted against routine empirical anticoagulation.

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IN RESPONSE: Dr. Epelbaum raises concerns that focusing on VTE or PE in patients with COVID-19 may misdirect investigators' attention to an epiphenomenon. We strongly disagree, especially because we believe that the references he gives do not back up his statements.

Dr. Epelbaum states that lack of VTE prophylaxis "remains a global deficiency," citing a study by Kröger and colleagues (1). The main topic of this study was to investigate whether patients presenting with VTE/PE in Germany had a risk factor that could have been identified previously. Most of these pa-

tients had no medical condition and no identifiable risk factor. The algorithm consequently decided against prophylaxis, which can hardly be extrapolated to patients with COVID-19.

It is correct that PE is a common (but rarely fatal) finding on computed tomography in critically ill patients (2), most likely because performance of this study has improved in recent years. In contrast, one third of our patients had a fatal PE. Furthermore, Dr. Epelbaum states that we used Bikdeli and associates' consensus statement to corroborate the demand for general anticoagulant treatment for patients with COVID-19 (3). This is not correct; instead, we stressed the need for further studies on this subject. The consensus statement focused largely on the effects of COVID-19-associated coagulopathies on anticoagulant strategies for cardiovascular interventions. A short paragraph cited by Dr. Epelbaum deals with empirical anticoagulant therapy in patients with COVID-19 and notes, "The majority of panel members consider prophylactic anticoagulation, although a minority consider intermediate-dose or therapeutic dose to be reasonable." This statement was written before our study and others were published (4). The panel's decision was based mainly on a single retrospective study from China in which only laboratory abnormalities had been presented and no autopsies had been done (5). As such, our study and that by Baldi and coworkers add substantial value to the consensus statement's claim that the "optimal dosing [for anticoagulant treatment] in patients with severe COVID-19 remains unknown and warrants further prospective investigation."

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