



## SCIENTIFIC LETTER

### Age as a limiting factor of admission to an intensive care unit<sup>☆</sup>



### La edad como factor limitante del ingreso en una unidad de cuidados intensivos

Dear Editor:

During the SARS-COV-2 pandemic in Spain, different social sectors have focused debate on how age has become a criterion for rejecting the admission of n-COVID-19 (new-Coronavirus disease 2019) patients to the Intensive Care Unit (ICU).<sup>1</sup>

During the mentioned period there has been an increase of up to 300% in the number of critical care beds in hospitals, representing an unprecedented care and logistics challenge.<sup>2</sup> In this scenario it is essential to establish a screening process upon admission, based on ensuring “maximum life expectancy”, with clear ICU admission and discharge criteria fundamented upon principles of proportionality and distributive fairness, in order to maximally benefit the largest possible number of patients. In this context we need to apply suitability criteria and take into account factors such as patient age, comorbidity, the severity of the disease, the involvement of other organ systems, and reversibility.<sup>3</sup>

It is clear that aging of the population has significant ethical implications for the management of elderly patients in the ICU. In relation to the guiding principles of beneficence and nonmaleficence, for a long time there has been contradictory evidence regarding the association between advanced age and a poorer prognosis, though elderly individuals with a poor prognosis in the ICU may present poorer outcomes if they are not admitted to the Unit.<sup>4</sup>

During 2018–2019, a study was conducted in Spain seeking to analyze in depth those variables related to denial of admission to the ICU, understood as a limitation of life support: the ADENI-UCI (analysis of decisions of non-admission to the ICU) trial. In this study the decision not to admit a patient could be justified on the basis of one or more of the following criteria: advanced age of the patient, the

presence of advanced chronic disease, previous functional limitation of the patient, an estimated future poor quality of life and/or treatment futility.

Based on the ADENI-ICU, the present scientific letter seeks to analyze the magnitude of the influence of the variable age upon the decision not to admit the patient to the ICU as a limitation of life support measure, in a period of time outside the setting of the viral pandemic.

The ADENI-ICU trial recorded a total of 2284 decisions of non-admission to the ICU during a period of 13 consecutive months in 62 Spanish Departments of Intensive Care Medicine. The mean age of the patients was  $75.25 \pm 12.45$  years, and 59.43% were men. Decisions of non-admission derived from the cessation of cardiopulmonary resuscitation maneuvering were excluded from the present analysis.

Based on multiple choice among the 5 mentioned options (advanced age of the patient, the presence of advanced chronic disease, previous functional limitation of the patient, an estimated future poor quality of life and/or treatment futility), up to 120 different combinations proved possible. Among the 2093 records analyzed, age was selected on 647 occasions (31%) in different combinations with advanced chronic disease (selected 1267 times [60.5%]), previous functional limitation (selected 1179 times [56.3%]), estimated future poor quality of life (selected 1301 times [62.1%]) and treatment futility (selected 1067 times [51%]). Age with advanced chronic disease was the most frequently recorded combination (309 times [15%]), followed by age with advanced chronic disease and previous functional limitation (220 times [10.5%]), and age with advanced chronic disease, previous functional limitation and estimated future poor quality of life (184 times [8.8%]).

Age as the sole justification of non-admission to the ICU was recorded on 34 occasions (1.6%). The mean age in this group was  $88 \pm 3.45$  years (44% males). These 34 patients were admitted to hospital from home, and 9 (26.4%) presented Class A functional grade (Knaus scale, corresponding to good previous health without functional limitations), 21 (62%) presented Class B (mild to moderate limitation of activities due to chronic disease), three (9%) presented Class C (severe but not disabling limitation due to chronic disease), and none presented Class D functional grade (severe restriction of activities, including confinement to bed). Of the 34 patients, 14 (41%) had required admission at least once in the previous year in relation to their current illness. In none of the 34 patients were there disagreements with the family or consulting physician. The in-hospital mortality

<sup>☆</sup> Please cite this article as: Escudero-Acha P, Leizaola O, Lázaro N, Cordero M, Gomez-Acebo I, González-Castro A, et al. La edad como factor limitante del ingreso en una unidad de cuidados intensivos. *Med Intensiva*. 2021;45:e47–e49.

rate after 90 days of follow-up was 41%. Of the 20 patients discharged, 70% were discharged home and 30% were discharged to chronic care centers.

From the data presented, it can be concluded that chronological age in itself is not the only factor considered by intensivists in deciding non-admission to the ICU in our setting. However, the literature does evidence that critically ill elderly patients are admitted less often to the ICU.<sup>5</sup> This observation is possibly related to the consideration of age as a risk factor associated to increased mortality in the ICU, since advanced age obviously implies a diminished physiological reserve, a greater prevalence of chronic disease conditions, and frailty.<sup>6</sup>

The present scenario is that of a healthcare catastrophe, i.e., an emergency care situation in which the disproportion between the existing needs and the available resources makes it necessary to adopt exceptional measures. In this regard, healthcare services must establish a different from usual balance between the duty of patient-centered care on one hand and the need for equity-oriented public health on the other. The availability of healthcare resources is always limited, but public health emergencies may imply a loss of human lives which under normal conditions could have been saved, considering that the scarcity of resources makes it necessary to prioritize the care of some patients over that of others. In this regard it is preferable to adopt measures seeking to afford maximum benefit for the largest possible number of patients.<sup>7</sup>

During the SARS-COV-2 pandemic, a greater impact has been described among elderly individuals, particularly in those with a greater comorbidity burden. In fact, due to the age-related changes in immune function associated to multimorbidity, elderly patients are at a significantly greater risk of suffering complications of n-COVID-19.<sup>8</sup> In this context, public health ethics differ from clinical ethics in placing priority on promoting common benefit versus the protection of individual autonomy. The main duty of the physician in clinical medicine is to care for the wellbeing of individual patients, though the lack of respirators in a public healthcare emergency setting may require physicians to restrict mechanical ventilation against their own clinical criterion and against the wish of some patients who otherwise could survive.<sup>9</sup>

n-COVID-19 overwhelmed the healthcare systems of different countries worldwide, including Spain. This implied serious disruption of the normal functioning of these systems and of the ICUs, resulting in suffering and irreparable losses. The capacity of our medical care and patient screening systems has been put to the test, and from the perspective of daily care in our ICUs, it can be considered that the Departments of Intensive Care Medicine have been able to rapidly expand care to as many patients as possible.

This may or should give rise to debate on public health ethics as a collective dimension of bioethics. This collective dimension prioritizes problems of equity and equality. But can we exclude the problems of responsibility and individual rights? This collective dimension of bioethics should prove to be a guarantee of social rights; accordingly, we also should ask ourselves whether it should be a subject for "specialists", or whether should it be understood as a duty of all citizens and of democratic and multidisciplinary society as a whole.

In any case, the selective application of exclusion criteria (patient age, in our case) to certain types of patients violates the principle of fairness, since patients who are similar in ethically relevant terms are treated differently. Categorical exclusion also may have the negative and undesired effect of implying that "it is not worth saving" certain groups of patients – a situation that further amplifies the perception of unfairness. In a public health emergency, the confidence of the population is crucial to ensure compliance with the restrictive measures. Therefore, an allotment system must make it clear that all individuals are considered "worthwhile". One way to do this is to consider as eligible for mechanical ventilation all those patients who under routine clinical conditions would effectively receive ventilation – though it is essential to know the availability of resources (respirators in this case), in order to determine how many patients may prove eligible in a situation such as that we have experienced.<sup>10</sup>

## Financial support

The present study has received no financial support of any kind.

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