Since January 2020 Elsevier has created a COVID-19 resource centre with free information in English and Mandarin on the novel coronavirus COVID-19. The COVID-19 resource centre is hosted on Elsevier Connect, the company's public news and information website.

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EDITORIAL

Predicting COVID-19 progress with clinical scales☆

Predicción con escalas clínicas de la evolución de la COVID-19

Early identification of the severity of SARS-CoV-2 pneumonia is a very important clinical challenge that primary care and emergency room physicians face daily[1]. The high mortality rate among these patients—50 times higher than that of community-acquired pneumonia[2,3]—and a lack of knowledge about the utility of scales such as the CURB-65 or the Pneumonia Severity Index, which are commonly used in this clinical scenario to evaluate prognosis, can increase the hospital admission rate, even among patients with criteria of non-severe pneumonia[4].

An appropriate risk stratification can be useful for safely discharging patients, tailoring the level of care the patient needs, or starting more intensive treatment. For example, in patients with hypoxia and signs of systemic inflammation, early use of tocilizumab is associated with a better prognosis and a significant reduction in mortality[5].

The absence of severity criteria can facilitate a rational use of hospital resources and allow for referring these patients to smaller hospitals, reserving intensive care unit (ICU) beds, and facilitating non-COVID healthcare activity. This is especially important given the unprecedented overload this disease has entailed for healthcare systems. Finally, avoiding unnecessary admissions increases quality of care, decreases the risks inherent to hospitalization, and avoids cost overruns.

In the initial weeks after the start of the pandemic, studies were published that described variables related to increased mortality[6]. Later, numerous risk stratification models were presented as support tools[7,8]. Nevertheless, to apply them in clinical practice, three important factors must be considered.

First, the outcome variable that is going to be used is important. Thirty-day mortality is a variable that has classically been used in research studies, but we have observed very long hospital stays among patients with COVID-19, especially among those who require ICU admission. Therefore, mortality may occur after 30 days. Second, a patient's final survival does not imply that they have not had severe symptoms with a prolonged hospitalization or intensive treatment. Therefore, it must be observed whether this variable has been included. Third, a high risk of bias has been described due to a combination of use of retrospective data and reports with deficient methods[9].

In this issue of Revista Clínica Española, Carriel et al.[10] analyze the ability of the CURB-65 scale to predict 30-day mortality in a series of 247 patients with COVID-19 in Ecuador during the first wave of the disease in March and April 2020. The CURB-65 scale is simple and easy to complete at the patient's bedside. It is widely used to determine the need for hospitalization in patients with community-acquired pneumonia.

This study has some important limitations, including a lack of a microbiological diagnosis in more than 75% of cases; the absence of information on the usefulness of dexamethasone or remdesivir at that time; the healthcare system overload experienced at the time the information was collected; and the limited availability of ICU beds for many patients. The authors found that a score higher than 2 on the CURB-65 scale was associated with a significantly higher mortality rate than that of patients with a score of 0–1 points. These findings were expected, given that more severe patients naturally have a greater risk of dying due to the disease.

On the other hand, it should be noted that in their series, mortality among patients with lower scores (0–1 points) was not negligible. This indicates that a low score on the CURB-

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65 scale is not able to identify a subgroup of patients that will progress poorly. From a clinical point of view, patients without dyspnea or tachypnea but with profound hypoxemia and extensive radiological infiltrates have been observed; this has come to be called silent hypoxemia[11–13]. It is important to recall that the respiratory rate is one of the variables in the CURB-65. This may in part explain why patients with these low scores have these mortality rates.

In this disease, the inflammatory component is very important and allows for more precisely stratifying severe patients. Likewise, hypoxia is a decisive prognostic factor associated with worse progress. It is possible that the incorporation of these two factors would have improved the scale's predictive capacity. In any case, in the absence of inflammatory biomarkers, the use of the CURB-65 scale along with oxygen saturation measurement are tools within the reach of any physician that can help in deciding whether to admit the patient or recommend outpatient monitoring. In an ideal predictive scale, it is probable that in addition to the factors included in the CURB-65 scale, it would be necessary to include the presence of hypoxia and some inflammatory markers.

In this issue, Ena et al. also describe the development and validation of a scale for predicting ICU admission[14]. The information comes from an extensive database (SEMI-COVID Registry, with more than 16,000 cases, of which 8% were admitted to the ICU). The authors identify a series of variables with great predictive power, among which the severity of the patient's comorbidities, age, neutrophil-lymphocyte ratio, LDH levels, and presence of diffuse infiltrates on a chest X-ray are of note.

ICU admission could be conditioned by other factors, such as the general occupancy of beds in that unit, the patient's characteristics, or the possibility of administering noninvasive mechanical ventilation (high-flow nasal cannula) in other units apart from the ICU; this information could be highly valuable. Knowing what patients may need ventilatory support at the time of admission can guide physicians toward different treatment. This information can also help scale each center's capacity to offer better treatment to their patients, which in the case of Ena et al.'s series, included ICU admission in 8% of cases[14].

Vaccination against SARS-CoV-2 is an extraordinary useful tool that decisively influences the control of this disease, reducing its severity and risk of complications, though not preventing them entirely. However, we cannot expect that the vaccine will make the incidence of SARS-CoV-2 pneumonia totally disappear. There will be unvaccinated patients and cases of vaccine failure in, for example, immunosuppressed patients who are not able to develop an adequate immune response. This variable may add complexity to the prognosis and it will be necessary to continue working to perfect prediction scales.

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V. Estrada[a,*], J. González del Castillo[b]

[a] *Servicio de Medicina Interna/Infecciosas, Instituto de Investigación Sanitaria del Hospital Clínico San Carlos (IdISSC), Madrid, Spain*

[b] *Servicio de Urgencias, Instituto de Investigación Sanitaria del Hospital Clínico San Carlos (IdISSC), Madrid, Spain*

* Corresponding author.
E-mail address: vicente.estrada@salud.madrid.org (V. Estrada).