INNOVATIONS

Can we manage prophylactic therapy in COVID-19 patients to prevent severe illness complications?

Podemos atuar preventivamente para evitar que os pacientes portadores de COVID-19 evoluam de forma mais grave?

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Abstract

Many patients with COVID-19 have thromboembolic complications that worsen their prognosis. Herein, the authors propose a modified version of the CHA_2DS_2-VASc score, including 1 point for COVID-19, so that prophylaxis to protect against thromboembolic events would be indicated before the condition becomes severe. The advantages of this modification would be prevention of the patient's condition worsening due to thromboembolic problems and reduction of the likelihood of a need for intensive care and mechanical ventilation, reducing mortality.

Keywords: COVID-19; coronavirus; anticoagulants; thrombosis; prevention; hospital mortality.

Resumo

Muitos pacientes com COVID-19 apresentam complicações tromboembólicas que acabam piorando seu prognóstico. Os autores propõem uma modificação no escore CHA_2DS_2-VASc, incluindo 1 ponto para COVID-19, para, desse modo, indicar profilaxia de eventos tromboembólicos antes do agravamento do quadro. As vantagens dessa modificação seriam evitar a piora do paciente por problemas tromboembólicos, bem como a necessidade de internação em unidade de tratamento intensivo e de ventilação mecânica, e diminuir a mortalidade.

Palavras-chave: COVID-19; coronavírus; anticoagulantes; trombose; prevenção; mortalidade hospitalar.

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INTRODUCTION

Since infection by COVID-19 was first described, the severe respiratory syndrome associated with the disease has caused rapid increases in admissions to intensive care units (ICUs) and elevated mortality of a group of patients.[1] During a pandemic, it is necessary to avoid saturation of health systems, both public and private, and in particular of ICUs. The principal relevant finding in the lungs is presence of platelet thrombi and fibrin in small arterial vessels, which fits perfectly with a clinical scenario of coagulopathy.[2]

Since there is no consensus-approved treatment in this situation and considering the possibility of thrombosis associated with infection by coronavirus in certain cases, recently-acquired experience and findings of still-embryonic scientific studies has shown that effective anticoagulation can prevent or reverse the prothrombotic state in some patients.[2,3]

PROPOSAL

We have observed that, coincidentally, the group of patients who respond poorly to the COVID-19 infection (Figure 1)[4] and die are the same patients whose CHA_2DS_2-VASc scores indicate risk of stroke, transitory ischemic episode, peripheral emboli, and pulmonary thromboembolism (Table 1).[5,6] According to this score, a patient is considered high risk if they score 2 points or more, intermediate risk if they score 1, and low risk if they do not have risk factors.[6] Our proposal, therefore, is to add 1 point to the CHA_2DS_2-VASc score (Table 1) for patients who have COVID-19 and use the new score to indicate prophylactic anticoagulation for patients with a high risk of thrombosis according to the score, in phase 2 of the disease (Table 2). The objective is to prevent the patient's condition from worsening because of thromboembolic problems, avoiding the need for ICU admission and mechanical ventilation.[7]

The idea is to proceed in a similar manner as with risk of thromboses and emboli according to the existing scores and initiate prophylaxis to attempt to avert occurrence of events that have contributed to the worsening clinical status of these patients.[1-3] In this communication, the authors propose modifying the scoring of the CHA_2DS_2-VASc score and studying its validity, with the objective of reducing the number of critically patients who progress to phase 3.
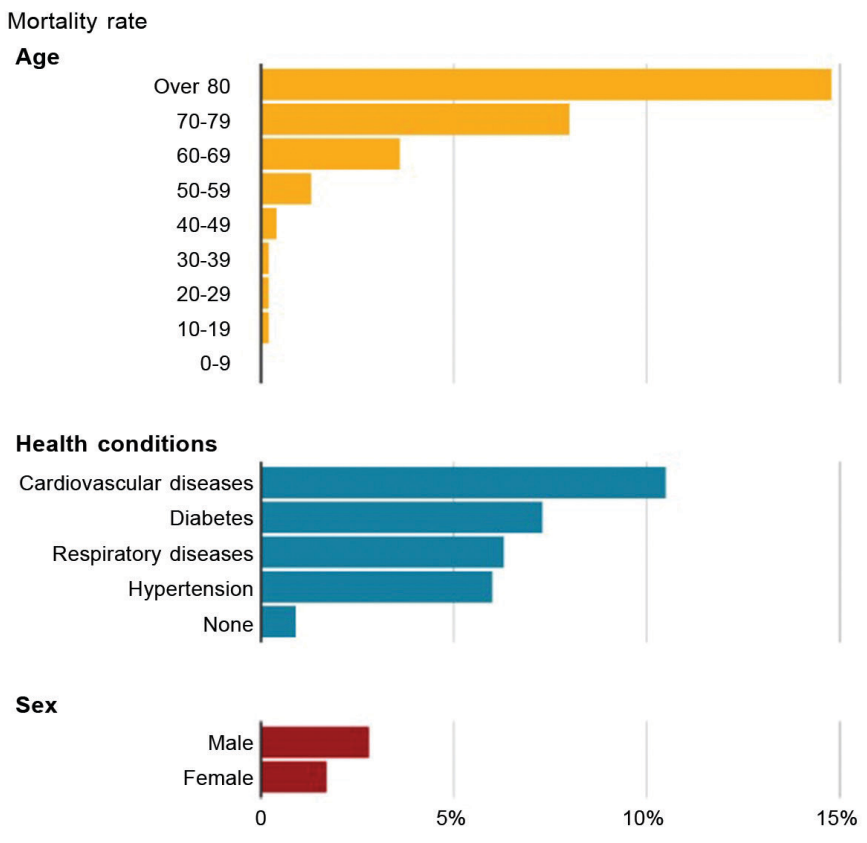

Figure 1. Mortality from COVID-19 varies by age and health status.[4]

Table 1. Structure of the CHA_2DS_2-VASc score after addition of 1 point for COVID-19 (CHA_2DS_2-VASc-C19).

CHA_2DS_2-VASc	Description	Points
C	Heart failure	1
H	Hypertension	1
A_2	Age (≥ 75 years)	2
D	Diabetes mellitus	1
S_2	Prior TIA or stroke	2
V	Vascular disease (prior AMI, aortic plaque, peripheral arterial disease)	1
A	Age (65-74 years)	1
C19	Suspected or confirmed COVID-19	1

TIA = transient ischemic attack; AMI = acute myocardial infarction.

Table 2. Phases of COVID-19 infection and treatment.

Phases	Clinical status	Treatment
Phase 1	Flu-like respiratory infection	Avoid contagion, reduce symptoms, reduce viral load with medications in use
Phase 2 (see Table 1)	High risk of thrombosis	Prophylaxis, avoid intra pulmonary thrombosis, prophylactic anticoagulation
Phase 3	Critical patient in ICU	Full therapeutic anticoagulation

ICU = intensive care unit.

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