COVID-19 pandemic and the opportunity to accelerate remote monitoring of patients

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In December of 2019, a novel coronavirus, later named SARS-CoV-2, was identified as the cause of an outbreak of pneumonia in China. The disease caused by that virus was designated COVID-19 and rapidly spread throughout the world, seriously affecting Latin America.

In a different manner from the first coronavirus that caused the outbreak of SARS in 2003 and that could only replicate in the lower respiratory tract, SARS-CoV-2 begins to replicate in the upper airways and is transmissible before an infected patient develops symptoms.[1] Thus, isolation of cases and contact tracing have been shown to be a more difficult task than it was during the SARS epidemic or the H1N1 pandemic in 2009, and only few countries succeeded in doing so.[2]

Although the clinical presentation of about 80% of the patients with COVID-19 is mild, the sheer number of cases in Latin American countries has led to the collapse of the overburdened health care system in many countries, such as what happened in Guayaquil (Ecuador)[3] and Manaus (Brazil).[4] On June 10, 2021, four of the ten countries with the highest death tolls were in Latin America, namely, Brazil, Mexico, Peru, and Colombia.[5] Therefore, strategies that could actively monitor patients with mild disease and identify those who are at an increased risk of worse outcomes are of paramount importance for overburdened health care systems.

In the current number of the *Jornal Brasileiro de Pneumologia*, Simian et al.[6] present a study carried out in a large tertiary center in Santiago, Chile, which involved a cohort of 7,108 outpatients with a positive RT-PCR SARS-CoV-2 test. Of those, 1,617 patients were actively followed through online surveys during their 14-day isolation period. The authors aimed to assess whether three symptoms reported by patients during the isolation period (i.e., new-onset fever, dyspnea, and chest pain) could predict the need for hospitalization. A follow-up online survey was sent to all of the patients on days 1, 6, 10, and 14 after the positive RT-PCR test result. Response rates were above 75% for all surveys. If a patient reported one of the three red-flag symptoms, a physician or a nurse would contact the patient by phone for a detailed evaluation. A total of 76 patients (4.7%) were hospitalized during the 14-day follow-up period. New-onset fever and dyspnea (but not new-onset chest pain) were associated with an increased risk of hospitalization during the 14-day follow-up period, according to a model adjusted for age, presence of comorbidities, fever, chest pain, and dyspnea at baseline.

The study by Simian et al.[6] provides significant evidence for the adoption of active remote monitoring of red-flag symptoms in patients with COVID-19. This strategy may identify patients with a high risk of hospitalization and decrease the burden of the disease in health care systems by reducing the number of face-to-face consultations. Many other conditions could benefit from similar follow-up online surveys, including assessment of adherence to treatment.

The study[6] has two major limitations that preclude the wide adoption of the intervention. First, only 22% of all outpatients with a positive SARS-CoV-2 RT-PCR test result were included in the follow-up study. It was unclear the reason why more than 5,000 patients could not be followed. However, we can infer from the data provided that the patients who were followed had a higher burden of comorbidities. The researchers might have decided to follow a population with a higher risk of hospitalization. Second, this was a single-center study in a large tertiary center. It is possible that centers with fewer resources would not be able to implement such follow-up programs.

Although COVID-19 has caused a death toll never witnessed since the 1918 Spanish influenza pandemic, hitting Latin America even in a worse way, it has also brought a more rapid implementation of new technologies, such as telehealth for remote monitoring of patients, which can reduce the overburden in health care systems and rapidly identify patients at a higher risk of worse outcomes, and, therefore, optimize resource allocation. The study by Simian et al.[6] suggested that it is possible to remotely monitor patients with an acute illness and identify those with new-onset fever or dyspnea as having a higher risk of hospitalization so that they could be followed more closely. These programs can be implemented for the follow-up of patients with common conditions, such as acute exacerbations of COPD, asthma, and tuberculosis.

REFERENCES

1. Osuchowski MF, Winkler MS, Skirecki T, Cajander S, Shankar-Hari M, Lachmann G, et al. The COVID-19 puzzle: deciphering pathophysiology and phenotypes of a new disease entity. Lancet Respir Med. 2021;9(6):622-642. https://doi.org/10.1016/S2213-2600(21)00218-6

2. Hong RJC, Varley K. The Covid Resilience Ranking. [cited 2021 Jun 10]. Bloomberg. Available from: https://www.bloomberg.com/graphics/covid-resilience-ranking/

3. Cabrera JMLK, A. Ecuador's Death Toll During Outbreak Is Among the Worst in the World. The New York Times. 2020 Apr 3 [cited 2021 Jun 10]. Available from: https://www.nytimes.com/2020/04/23/world/

1. A.C. Camargo Cancer Center, São Paulo (SP) Brasil.

americas/ecuador-deaths-coronavirus.html

4. G1 [homepage on the Internet]. Rio de Janeiro: globo.com [updated 2021 Jan 14; cited 2021 Jun 10]. Covid-19: Manaus vive colapso com hospitais sem oxigênio, doentes levados a outros estados, cemitérios sem vagas e toque de recolher. Available from: https://g1.globo.com/am/amazonas/noticia/2021/01/14/covid-19-manaus-vive-colapso-com-hospitais-sem-oxigenio-doentes-levados-a-outros-estados-cemiterios-sem-vagas-e-toque-de-recolher.ghtml

5. Worldometer [homepage on the Internet]. Worldmeter; c2021 [updated 2021 Jun 10; cited 2021 Jun 10]. COVID-19 coronavirus pandemic. Available from: https://www.worldometers.info/coronavirus/

6. Simian D, Martínez M, Dreyse J, Chomali M, Retamal M, Labarca G. Clinical characteristics and predictors of hospitalization among 7,108 ambulatory patients with positive RT-PCR for SARS-CoV-2 during the acute pandemic period. J Bras Pneumol. 2021;47(4):20210131.