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Commentary: Do radiological findings play a role in the screening of COVID-19 in patients undergoing cardiac surgery?

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The COVID-19, severe acute respiratory syndrome coronavirus 2 has been declared a global pandemic in March, 2020. To cope with the imposed challenges, healthcare facilities, worldwide, have adopted significant changes in their operational policies. Of the implemented changes, screening asymptomatic patients undergoing elective surgeries for latent COVID-19 infection has proven vital to optimize the use of the limited medical resources and to prevent the in-hospital spread of infection. Viral DNA detection using the reverse transcription polymerase chain reaction (RT-PCR) has been considered the gold standard for COVID-19 diagnosis.¹ However, several studies have reported suboptimal sensitivity with a high false negative rate of up to 54%.^{2,3} Other drawbacks of the RT-PCR test include the limited availability of the test kits, particularly in resource-limited countries, and the time needed to get the test results which can take hours to days. As a result, alternative/adjunct laboratory and radiological tests have been proposed. Several studies reported that Chest Computed Tomography (Chest-CT) has high sensitivity in detecting COVID-19 infection in high-risk symptomatic patients residing in endemic areas. Ai and colleagues reported a 97% sensitivity of Chest-CT in detecting COVID-19 in 1014 highly suspicious patients in Wuhan, China.⁴ To date, data on using Chest-CT as a screening tool in areas of low COVID-19 prevalence are scarce.

In this issue of the journal, Knol and colleagues shed the light on the potential role of screening Chest-CT in identifying latent COVID-19 infection in 109, low-risk, asymptomatic individuals undergoing cardiac surgery in Erasmus Medical Center, Netherlands.⁵ The authors used the CO-RADS Chest-CT scoring system that was developed by the Dutch radiological society to identify radiological findings suspicious for COVID-19 infection. Radiological findings suspicious for COVID-19 infection were found in 8 patients (7%). Of them, 6 patients had a confirmatory negative RT-PCR test. The



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Central Message

In this issue of the Journal, the study by Knol and colleagues, adds to the building evidence that CT-chest screening for COVID-19, has a low positive predictive value in low prevalence areas.

remaining 2 patients were not tested with RT-PCR given the low clinical suspicion and did not develop COVID-19 infection during their hospitalization. Interestingly, one patient with an initial negative CT chest developed COVID-19 infection 10 days after his surgery. It is not clear if the patient had a latent COVID-19 prior to admission or contracted the virus during his hospital stay. In a secondary analysis, the authors reported that the prevalence of abnormal Chest-CT findings suspicious for COVID-19 infection (CO-RADS ≥ 2) was comparable to that identified in a matched historical control group that underwent preoperative Chest-CT screening as a part of a randomized trial investigating the risk of stroke in patients undergoing cardiac surgery prior to COVID-19 pandemic.

This study provides valuable data on the prevalence of pulmonary radiological abnormalities in patients undergoing

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cardiac surgeries, and adds to the building evidence that the performance of screening Chest-CT might be suboptimal in areas with low COVID-19 infection prevalence.⁶ However, the generalizability of the study results might be limited by the relatively small sample size and by limiting RT-PCR testing to those with abnormal radiological findings which precluded the proper estimation of the diagnostic accuracy of screening Chest-CT in that setting. In addition, latent COVID-19 infection could not be ruled out in a quarter of the patients who had suspicious radiological findings, as they were not subsequently tested with RT-PCR, which might compromise the validity of the study results.

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