

Safety and role of chest CT in COVID-19 patients

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Dear Editor,

We read with great interest the online published articles by An et al. (1) and Sverzellati et al. (2) in the March 2020 issue of *Diagnostic and Interventional Radiology*. The authors reported the management strategy of coronavirus disease 2019 (COVID-19) pneumonia emphasizing correctly the measures for safety of staff in the radiology department (1) and the proper use of imaging in COVID-19 outbreak (2). However, some considerations are needed with respect to the management of the CT unit in an adapted COVID-19 hospital and the role of chest CT in COVID-19 patients.

In special fever (suspected COVID-19) patients, An et al. (1) indicate an independent control room for CT examination, an isolated CT room from normal working environment of the radiology department, with a special channel between the CT room, the fever clinic, and the isolation area.

Rapid spread of COVID-19 outbreak has resulted in an overload of hospital admissions, making it necessary to either reorganize the hospital or create a dedicated COVID-19 hospital to ensure safety and guarantee the clinical needs. In the adapted COVID-19 hospitals, the route towards CT room/area for suspected or confirmed COVID-19 patients must be dedicated and as short as possible.

Identification of a dedicated CT unit, separate from the one used for routine examinations in the emergency area of the radiology departments, is necessary; the examination room should be in a strictly independent location, possibly not shared with other rooms or other CT equipment, in an isolated area or at least one that is separate from the radiology department. In hospitals with numerous CT units, an organizational model may be adopted to reduce the infection rate, such that different CT units may be dedicated for different levels of suspicion for COVID-19. Additional measures to reduce the spread of infection include using a very short channel for transfer of suspected or confirmed patients, employing a negative pressure disinfection method, and an anti-infection head-bag to protect the patient.

Sverzellati et al. (2) outline that diagnosis of COVID-19 is based on reverse-transcription polymerase chain reaction (RT-PCR). Chest CT detects viral infection but it does not discriminate the COVID-19 infection from those caused by other viruses (H1N1, SARS-CoV and MERS-CoV); CT should not be used to screen for or as first-line test but reserved for hospitalized, symptomatic patients with specific clinical indications (3). Epidemiologic history, routine blood work and other preliminary judgments are needed to classify the cases as low risk, suspected, or highly suspected, such that patients can be directed to different areas of the hospital (e.g., isolation wards for different levels of risk).

In COVID-19 patients chest CT is helpful for early detection and follow-up of parenchyma patterns (4); in critically ill COVID-19 patients contrast-enhanced CT of the chest is mandatory to diagnose pulmonary thromboembolism.

Finally, in patients recovered from COVID-19 a repeat chest CT may be considered before discharge from the hospital—in addition to normal blood oxygen saturation, absence of symptoms, normal body temperature returned to normal for more than 1 week and at least two RT-PCR tests negative with sampling time at least 24 hours apart—in order to prevent the "relapse of infection" that can be observed in some patients after discharge.

Conflict of interest disclosure

The authors declared no conflicts of interest.

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