Artigo de Opinião / Opinion Article

COVID -19

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The first cases of new coronavirus infection in 2019 diagnosed as severe pneumonia of unknown etiology appeared in December 2019 in the city of Wuhan, China. Later on, patients' respiratory samples have shown the presence of the coronavirus (SARS-CoV-2), identified as the agent causing the COVID-19 disease. Its rapid spread worldwide led the World Health Organization (WHO) to declare on March 11, 2020, the COVID-19 infection, a worldwide pandemic.[1]

It is now known that SARS-CoV-2 is transmitted by inhalation or direct contact with infected droplets, the incubation period varies between 1 to 14 days, and that infected patients can be asymptomatic and transmit the disease. Symptoms are nonspecific, the most common being fever, cough, dyspnea, myalgia and fatigue.[2,3]

It is estimated that approximately 80% of patients develop mild illness, 14% severe illness and 5% critical illness. Patients with severe illness usually show signs and symptoms of viral pneumonia and may progress to situations of Acute Respiratory Difficulty Syndrome (ARDS), acute heart failure, acute kidney injury, infection, sepsis or shock. Mortality from the disease is significantly higher in patients with severe disease, in elderly patients and with comorbidities, with a mortality rate varying from 2 to 3%.[4]

The spread of the disease is growing much faster than the capacity of health services to respond effectively in most European countries. Thus, there is an urgent need to stop this progression with early diagnosis and isolation in order to achieve control of the disease.

The diagnosis of COVID-19 is done through the amplification of nucleic acids by RT-PCR method in real time for SARS-CoV-2. Also, diagnostic imaging methods, namely thoracic radiography and thoracic computed tomography (CT) have been widely used in the investigation of patients with suspected or confirmed COVID-19. However, the value of these imaging techniques in the diagnosis and control of the disease is not yet consensual.

Thoracic radiography is currently the first-line imaging examination in a suspected or confirmed case of COVID-19. There must be conditions to be performed without or with minimal patient movement and using non-transportable equipment in the proper room. This presents a low sensitivity to identify the earliest and most frequent manifestations of the infection, therefore, its use is not recommended to exclude the diagnosis of COVID-19, especially in patients with recent onset of symptoms (Canadian Society of Thoracic Radiology - CSTR). However, it allows to identify the presence of consolidation translating to a pneumonia process, which is considered a criterion of disease severity. This is not a specific finding of the COVID-19 infection, but it is the one most frequently found in published studies.

Thoracic CT alone cannot confirm the diagnosis of COVID-19 infection. It is described that in the first 48 hours after the onset of symptoms, 56% of patients have normal exams. In the examinations performed with a longer time span since the onset of symptoms, pulmonary involvement is present due to the disease, which worsens over time. It is assumed that the frequency of pulmonary changes at CT is related to the duration of the disease.[4] In an early stage of the disease, the pattern of ground glass is observed, predominantly bilateral and in peripheral and posterior location, reaching more than one lobe and preferably the lower lobes. With evolution, septal thickening, "mosaic" pattern and peripheral consolidation may appear and, in more severe and advanced phases, traction bronchiectasis. Although the understanding of CT imaging patterns, based on the time of the infection's evolution, is important to understand the pathophysiology and natural history of the disease, they are not pathognomonic and, therefore, do not have specificity in differentiating from other pathologies. Eventually, thoracic CT may help to predict the development of complications and may show whether the findings that are absent in an acute phase such as pleural effusion, empyema, pericardial effusion, cavitations or lymphedenopathies, appear later on.[4] In the future, thoracic CT will be important in the evaluation of possible sequelae in cured patients.

This lack of diagnostic specificity of imaging techniques raises the question of the risk/benefit of mobilizing patients infected or potentially infected with SARS-CoV-2, so their need should be carefully evaluated. The requests for these exams must always be accompanied by detailed clinical information and precise indications justifying the exam, bearing in mind that the performance of any imaging technique in the COVID-19 infection will have to be operationalized in order to carry out a strict infection control, reducing the risk of patients and professionals to a minimum.

However, in CT scans performed for other causes, whenever pulmonary changes are found that fit the diagnosis of COVID-19 infection, the radiologist must alert

the clinician, so that the diagnosis is confirmed, preventing the spread of the disease by an asymptomatic patient.

We conclude that the main objectives of the response to COVID-19 infection are to reduce morbidity and mortality, to minimize disease transmission and protect health professionals and the community.[5] The American College of Radiology (ACR), in its publication of March 22, 2020, does not recommend, in the current context, the performance of thoracic radiography or thoracic CT to diagnose COVID-19. ACR advises that these techniques should be used sparingly. CT should be reserved for positive, hospitalized and symptomatic COVID-19 patients with clinical worsening and where the exam result may be important for the clinical decision. It is important to stress that before and after the examination, the appropriate infection control procedures must be followed, leaving the room and equipment in hygienic and safe conditions for the following patients.

Referências

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