

Evaluation of prevalence of lung CT scan patterns in patients suspected of covid 19 and its relation to disease severity

Abstract

Background: Corona virus 2019 (Covid 19) is a global pandemic. As of April 28, 2020, the virus had infected patients in 185 countries, and more than 3 million people had been infected by that time, resulting in 210,000 deaths. The virus appears to have been transmitted from bats similar to other corona viruses because of its 89 to 96 percent nucleotide similarity to bat corona viruses. The lungs are the main site of infection. Patients infected with Covid 19 or with high clinical suspicion are more likely to present with the clinical symptoms of fever and cough than with the new coronavirus, and due to its flu-like nature, it is difficult to detect early. So the challenge for treatment systems right now is early detection of Covid 19. The use of PCR is now the gold standard for detecting Covid 19 in many countries. This method is not easy to detect early due to its time-consuming and costly nature, and there may also be a serious shortage of PCR diagnostic kits in many countries. Therefore, the use of chest tomographic scans with typical clinical signs of the patient can be a valuable tool in the early diagnosis of Covid 19 because in some cases, although the diagnostic features of the disease are known in CT scans, the PCR test is negative.

Aim: The aim of this study was to evaluate the pattern of lung involvement in patients with positive clinical symptoms in the Covid 19 pandemic period who referred to the imaging center of Alavi Hospital.

Materials & Methods: Patients with typical clinical symptoms of Covid 19 who were referred to the imaging center of Alavi Hospital during the new coronavirus pandemic period from March 2019 to May 2020 were evaluated for thoracic CT scan findings. After collecting all the information, it was entered into a researcher checklist and entered into SPSS software version 26 in order to process the data using statistical quantities and graphs.

Results: A total of 301 patients with Covid 19 were studied in this study. The mean age of study participants was 54.62 with a standard deviation of 17.66. 151 patients (50.2%) were male. Diabetes and hypertension were present in 41 (13.6%) and 94 patients (31.2%), respectively. 16 patients (5.3%) reported a history of lung disease, as well as other underlying diseases such as stroke, kidney disease, gastrointestinal disease, etc. were reported in 66 patients (21.9%). 186

patients reported 19 cases (38.2%) of involvement of other family members. In terms of smoking, 64 patients (21.3%) smoked and 39 patients (13%) used hookah. 255 patients (84.7%) were treated on an outpatient basis, 37 patients (12.3%) were treated in the ward and 9 patients (3%) were treated in the intensive care unit. A total of 2 patients (0.7%) died. 233 patients (77.4%) had fever and 89 patients (26.9%) reported chills. Cough was reported in 167 patients (55.5%). 114 patients (37.9%) complained of shortness of breath. 67 patients (22.3%) reported myalgia, 58 patients (19.3%) reported gastrointestinal symptoms, 104 patients (34.6%) reported headache, and only 23 patients (7.6%) reported anosmia. Covid had 19. Right upper lobe, right middle lobe, right lower lobe, left upper lobe and left lower lobe in 169 (56.1%), 165 (54.8%), 210 (69.8%), 182 (60), respectively. 5%), 211 (70.1%) patients were involved. 168 patients (55.8%) Ground Glass involvement, 25 patients (8.3%) consolidation involvement, 49 patients (16.3%) linear turbidity, 44 patients (14.6%) Crazy Paving, 7 patients (2.3%) had small nodules and 45 patients (15%) had round opacities on contrast-free CT scan. Only the pattern of involvement in the form of linear turbidity was directly and significantly related to the severity of the disease.

Conclusion: Based on the results, the highest pulmonary pattern involved among patients were Ground Glass Opacity, Linear Opacity and Crazy Paving patterns. Also, the most common clinical symptoms were fever, cough and shortness of breath.

Keywords: CT scan-Covid19-Pandemic