DIAGNOSTIC UTILITY OF CHEST CT-SCAN FOR COVID-19, IN THE EARLY STAGES OF THE PANDEMIC IN BROOKLYN, NEW YORK

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BACKGROUND

Diagnosis of coronavirus disease 2019 (COVID-19) in the early weeks of the severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) pandemic in New York City posed unique challenges. Due to inadequate testing availability and long turnaround times, decisions on which patients to isolate were problematic. With sensitivity comparable to reverse transcription polymerase chain reaction (RT-PCR), the absence of ground glass opacities (GGOs) on chest CT scan was useful to rule out COVID-19. We evaluated the specificity of chest CT scan findings for COVID-19 along with other clinical and laboratory findings.

METHODS

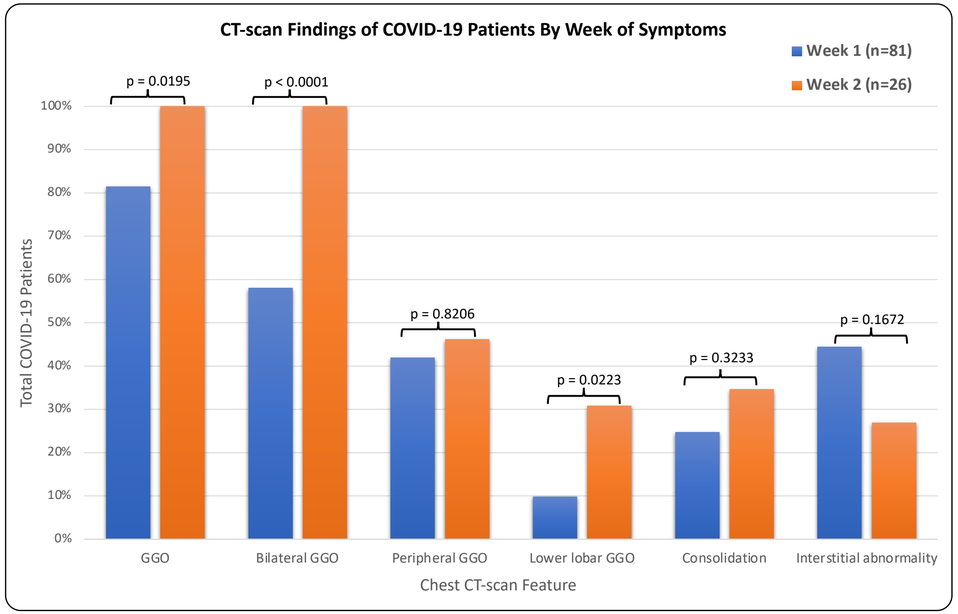
A retrospective chart review was done of 182 adult patients who were tested for SARS-CoV-2 by RT-PCR and underwent a chest CT scan while admitted to Maimonides Medical Center between March 1 to 23, 2020. Cases were defined as those with a positive RT-PCR result or who were treated for COVID-19. Negative cases were defined as those with negative RT-PCR and an alternative diagnosis confirmed by an ID physician. Beyond March 23, almost all newly admitted patients were isolated.

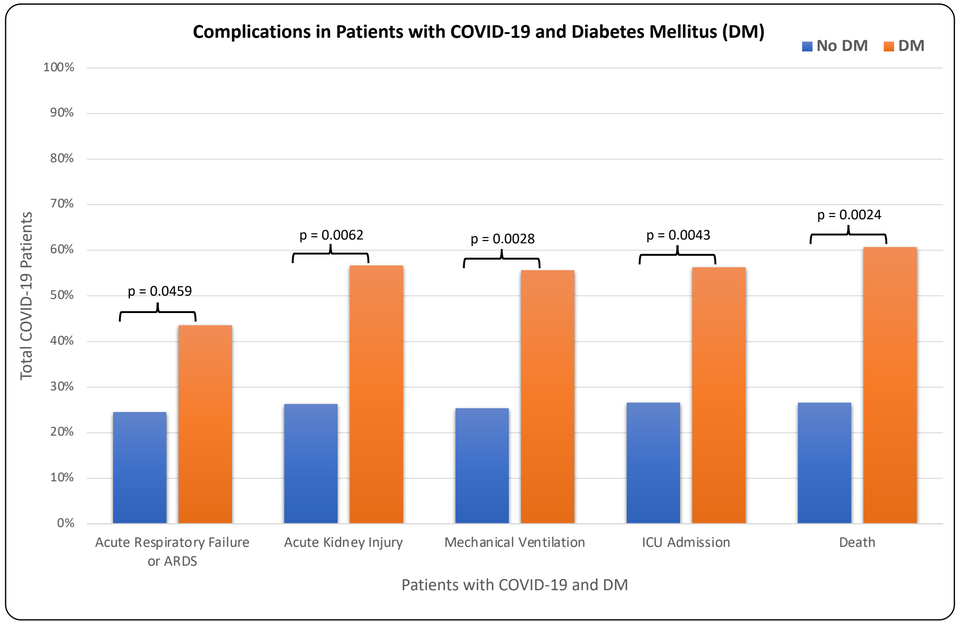
RESULTS

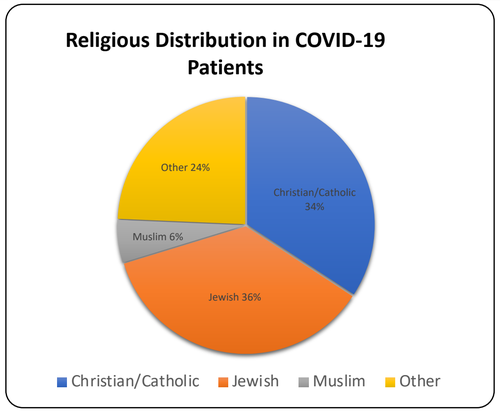
There were 111 COVID-19 positive and 71 COVID-19 negative patients. Of the COVID-19 patients, 61% were male and 39% female, 56% white, 20% Hispanic, 14% black, 9% Asian, 36% Jewish, 35% had diabetes mellitus (DM), 50% had hypertension and 42% had cardiovascular disease. Clinical symptoms, signs, and laboratory values for COVID-19 positive and negative groups were not significantly different. COVID-19 patients had significantly higher BMI (p = 0.001). On chest CT scan, bilateral or unilateral, peripheral distribution and lower lobar GGOs were over 80% specific for COVID-19. The frequency of GGOs was significantly higher when chest CT scans were done during the second week of illness compared to the first week (p = 0.0195). Jewish patients were associated with higher rates of death (p = 0.0475) and underlying DM was associated with higher rates of ARDS, AKI, intubation, ICU admission and death (p < 0.05) compared to other demographic and comorbid groups.

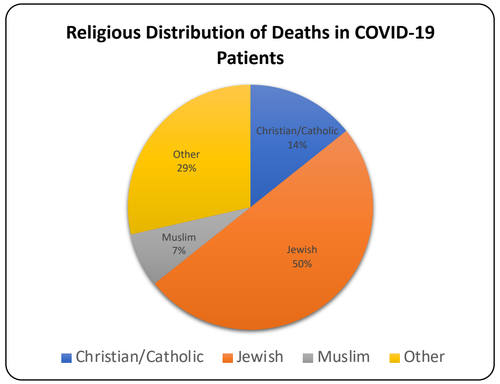
CONCLUSIONS

Chest CT scan is an important component in the diagnostic process for patients with suspected COVID-19 infection, especially during the second week of symptoms. The findings may aid clinical decisions in the setting of a second surge of SARS-CoV-2.









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