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Impact of gender and age on the extent of the lung involvement in COVID-19 patients: A descriptive study based on chest X-rays

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Background: The COVID-19 outbreak in late 2019 and its' expeditious spread has become a global crisis. The epidemiologic reports indicate an unexplored link between the demographic characteristics of patients and the effects on the lungs.

Objective: The study assessed the association of impact of COVID-19 infection on lung fields with gender and age of the patients using chest X-rays (CXRs).

Methods & Materials: A retrospective descriptive study was conducted with 123 CXRs of COVID-19 infected patients, that were confirmed by PCR/RAT. Lung involvement from COVID-19 infection was analyzed based on the gender and age of the patients. The involvement of lung was assessed based on the scores of the CXRs by a radiologist (> 25yrs of expertise), using the COVID-19 Radiographic Scoring (CRS) system.

Results: Sixty-five male (52.8%) and fifty-eight female (47.2%) patients were included. The mean age of male and female was 50.9 years and 58.65 years respectively. There was no difference identified between the mean score of the CXRs with gender ($z=-1.326$, $p=0.185$). However, a significant correlation was identified between the CXR score and the age of all patients ($r=0.338$, p value <0.01). The mean scores of CXRs for the age groups of 18-38 years, 39-59 years and 60-86 years were 0, 4.97 ± 7.49 and 10.51 ± 15.46 respectively. Therefore, in average, greatest effects of COVID-19 on the lungs were identified in patients within the age group of 60-86 years and relatively less effects were observed for the patients in age groups 18-38 years and 39-59 years.

Conclusion: The impact of COVID-19 on lung fields did not show a significant association at gender. However, a significant difference in the impact was identified with the age of the patients. It was observed that the impact was severe and the risk is higher for the 60-86 age group in average.