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A Gender-based Evaluation of Quantitative and Radiological Computed Tomography Imaging Features in Patient with COVID-19

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Abstract

Computed Tomography (CT) is a widely utilized and precious method that is used to determine the severity of COVID-19. High-Resolution Computed Tomography (HRCT) is the inherent protocol for covid pneumonia. The chest severity score is a diagnostic tool to measure the severity of COVID-19 by using quantitative and radiological imaging features. The aim of the study was to evaluate the quantitative and radiological features of computed tomography imaging in COVID-19 patients base on their gender. The study included 49 patients who underwent COVID-19 positive and HRCT examinations. The patient's age, gender, lymphocytes, and neutrophils were quantified. Depending on whether non-communicable diseases were present or not, the data set was divided into two groups. The 3D slicer software was used to obtain functional volume and affected volume in both the right and left lungs in inspiration and expiration. The Mann-Whitney U test was performed to assess the difference between the male Total Severity Score (TSS) and the female TSS. Kendall's tau test was performed to evaluate the correlation among the variables. According to the present study results, there was no significant difference in TSS between males and females. There was no significant difference in TSS according to the presence of non-communicable diseases. The present study was concluded that it is feasible to devise a formula for the CT severity score and that a grading scale the severity can be developed by using the TSS since there is no studies for the severity category in Sri Lanka.

Keywords: *COVID-19, CT, HRCT, Gender, TSS*