

# The Quantitative Computed Tomography Techniques are Alternate Modalities of Assessing the Disease Profile of COPD Instead of Pulmonary Function Testing Under COVID-19 Pandemic [Letter]

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## Dear Editor

With interest, we read the review article by Wang et al<sup>1</sup> published in the recent issue of the *International Journal of Chronic Obstructive Pulmonary Disease* (COPD). They argued disease courses of COPD are difficult to predict with readily available data, such as pulmonary function testing (PFT). The use of quantitative computed tomography (QCT) techniques are alternate modalities of assessing the disease profile of COPD instead of PFT. Although QCT and other tools are increasingly being used in research and clinical settings, the OCT has yet to be consistently adopted for diagnostic work-up for COPD.

The authors have well summarized concerning analytical softwares of QCT. However, the most critical point of COPD diagnosis under COVID-19 pandemic is totally neglected. After the emergence of severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) in public, the diagnostic approach for COPD was often disrupted. PFT including spirometry could generate aerosolized droplets, and may increase the risk of transmission of respiratory viruses including SARS-Cov-2 to healthcare workers. Based on this caution of COVID-19 prevention, diagnostic PFT procedures are not recommended under COVID-19 pandemic.<sup>2</sup> On the other hand, COPD is a significant risk for the diseases progression of COVID-19.<sup>3</sup> Thus the alternate modalities for diagnosis of COPD instead of PFT are urgently necessary for the reduction of COPD morbidity and mortality. The QCT may be the strongest modality for the accurate diagnosis of COPD. It seems highly likely that the pandemic will accelerate the type of innovation, the use of new diagnostic tools. While such imaging tools including OCT are increasingly being used in research and clinical settings, they have yet to be consistently adopted for diagnostic work-up for COPD. The type of argument was not discussed in the current review paper.

To diagnose an individual with COPD, a potential patient must undergo a simple breathing test called spirometry. However, one's healthcare provider will perform medical imaging, a form of testing that result in a visual depiction of the patient's lungs. In such cases, an imaging test, such as chest x-ray, CT scan, or an ECG may be used to identify other potential causes of COPD symptoms and confirm one's diagnosis. The CT scan is the most sensitive and accurate option in detecting and measuring emphysema. Additionally, a high resolution CT scan is also excellent at detecting and determining the severity of bronchiectasis and another lung disease that falls under the scope of COPD.

It has been also suggested that Visual assessment and phenotyping of CT in COPD patients is feasible and may help identify functional and clinically different subsets of patients.<sup>4</sup>

Quantitative CT is increasingly used to quantify the features of COPD, specifically emphysema, air trapping, and airway abnormality. Several authors have shown that current smokers appear to have lower levels of emphysema than

former smokers.<sup>5</sup> Therefore smoking status should always be taken into account when assessing severity of emphysema by quantitative CT.<sup>6</sup> Although quantitative CT measures correlate with severity of visually assessed emphysema, the level of correlation is not strong. Thus, several limitations exist when using clinical chest CT scans to diagnose and evaluate COPD and its severity. However, under the COVID-19 pandemic, measurement of chest CT scans is safe, accurate, and effective modality to evaluate the severity of the diseases.<sup>7</sup> Consequently, chest CT imaging represents a promising initial screening tool for COPD that may facilitate targeted therapy in the risk individuals with COPD with or without COVID-19.

## Disclosure

The author reports no conflicts of interest in this communication.

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