

# Underutilization of Diffusion Capacity of Lung for Carbon Monoxide in Severity Assessment and Prognostication of COPD

Muneeb Mohammed<sup>1</sup>, Sundaramurthy Annamalai<sup>2</sup>, Ajeesh K Padmanabhan<sup>3</sup>

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Dear Editor,

Until a certain period of time, men were considered to be more prone to developing chronic obstructive pulmonary disease (COPD). However, the increase in tobacco usage in women in developed nations and the exposure to indoor air pollution from biomass fuel in developing and underdeveloped countries had led to equal incidence of the illness in men and women.<sup>1</sup> Internationally, it is projected that about 3 million people were affected by the illness in 2015 (i.e., 5% of all mortality globally in that year).<sup>2</sup> Total deaths due to COPD are likely to increase by more than 30% in the next 10 years unless a timely and aggressive action is taken to decrease the underlying risk factors, particularly tobacco usage.<sup>2</sup> This has called for urgency in devising better multidimensional COPD indices for better stratification of severity and prognosis to aid in decisive resource allocation. One of the potential parameters excluded in the existing indices is diffusing capacity of lung for carbon monoxide (DLCO) test.

The DLCO, also familiar as the transfer factor for carbon monoxide, is a value of the conductance of transfer of gas from inspired gas to the red blood cells. DLCO is generally expressed in mL/minute/mm Hg at standard temperature and pressure dry. The DLCO can be measured by the single-breath method with a 10 second breath hold. The alveolar volume (VA), used to view the number of contributing units of alveoli, can also be assessed during the single-breath DLCO by use of a gas tracer (e.g., helium). The carbon monoxide transfer coefficient ( $K_{CO}$ ), expressed as DLCO/VA, is an index of the state or quality of alveolar transfer of carbon monoxide.<sup>3</sup> Studies have shown that DLCO in patients with COPD correlates significantly with oxygen saturation at rest.<sup>4</sup> This study also showed a significant association between the percentage of DLCO and GOLD scores.<sup>4</sup> This association of DLCO with GOLD staging indicates the potential for use of DLCO as part of the assessment of the health status in patients with COPD. There is another study which compares exercise test with DLCO that showed a significant correlation.<sup>5</sup> It also depicts that exercise capacity worsens as the DLCO value decreases. A study, which we had conducted on patients with COPD also exhibited a significant correlation between the severity of COPD with various categories of DLCO (unpublished). Thus, early diagnosis of COPD, progression of disease, and response to treatment can be very well assessed by DLCO. Thus, early

<sup>1-3</sup>Department of Respiratory Medicine, Shri Sathya Sai Medical College and Research Institute, Sri Balaji Vidyapeeth, Ammapettai, Tamil Nadu, India

**Corresponding Author:** Ajeesh K Padmanabhan, Department of Respiratory Medicine, Shri Sathya Sai Medical College and Research Institute, Sri Balaji Vidyapeeth, Ammapettai, Tamil Nadu, India, Phone: +91 9496371463, e-mail: drajeeshkp@gmail.com

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diagnosis of COPD was done. We are here by putting forward this communication to bring focus on the need to escalate the use of DLCO in patients with COPD for better categorization of severity and accurate prediction of prognosis as well as to identify other concomitant parenchymal diseases. This would be synonymous with facilitating interventions aimed at better survival of COPD with patients. It is suggested to facilitate more studies and generate ample data to act as a votary of promulgating DLCO in a day-to-day evaluation of all COPD with patients for severity assessment and prognostication of disease.

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