From the authors:

We are grateful to C. Borland for his comments on our review of the T_{LNO}/T_{LCO} ratio (the ratio of the transfer factor of the lung for nitric oxide *versus* carbon monoxide) [1] and its clinical applications. Undoubtedly, T_{LNO}, on its own, has a role to play in accessing alveolar function in terms of the membrane diffusing capacity, D_M. The calculation of pulmonary capillary volume (V_c), on the other hand, requires a value for Θ_{blCO}, the specific conductance of blood for carbon monoxide, and there is some doubt about its correct value. The T_{LNO}/T_{LCO} ratio does not require knowledge of Θ_{blCO}.

An important difference between T_{LNO} and T_{LCO} is that T_{LNO} is not affected by changes in alveolar oxygen tension (P_{AO_2}). Thus, as Borland points out, the T_{LNO}/T_{LCO} ratio will fall if mean P_{AO_2} falls because of its dependence on the $D_{MCO}/\Theta_{blCO} \cdot V_c$ ratio and the increase in the value of Θ_{blCO}. But, with the standard single breath technique, with a maximal inspiration and subsequent breath hold, there is not likely to be much variation in P_{AO_2} in those units "accessible" to the inspired test gas, whose oxygen fraction is between 0.18 and 0.21 depending on the test gas composition. In routine lung function no corrections have been proposed for P_{AO_2} inhomogeneity in the single breath T_{LCO} test.

C. Borland argues that units with a high alveolar ventilation to perfusion (V'_A/Q') ratio have a high D_M/V_c since pulmonary capillary blood flow (and presumably capillary volume) is low in relation to alveolar surface area and volume, and this will increase the T_{LNO}/T_{LCO} ratio. Because of its dependence on $D_{MCO}/\Theta_{blCO} \cdot V_c$, the T_{LNO}/T_{LCO} ratio will be further increased in high V'_A/Q' units by the rise in P_{AO_2} and fall in Θ_{blCO}; thus, a rise in T_{LNO}/T_{LCO} could be a marker for pathological processes involving the pulmonary circulation, including emphysema. We thank C. Borland for pointing this out. But, because of the nature of the single breath test, the rise in D_M/V_c is likely to be more important than the fall in Θ_{blCO}.

The converse, that low V'_A/Q' (poorly ventilated but overperfused) regions will have a low D_M/V_c ratio seems less likely, since V'_A/Q' and D_M/V_c ratios are not directly related. V'_A/Q' depends on the ratio of flow rates, measured during tidal breathing; D_M/V_c ratios, on the other hand, measured at full inflation during a breath hold, reflect, more or less, the ratio of alveolar membrane to capillary and red cell surface areas. As we point out in our review [1], this surface area ratio decreases as lung expansion declines (equivalent to a fall in the ratio of transfer coefficients for NO *versus* CO) and is the reason for the fall in T_{LNO}/T_{LCO} in extrapulmonary restriction.

Finally, in cases of severe anaemia with very low haemoglobin levels, we take C. Borland's point that T_{LNO} may be reduced.

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The T_{LNO}/T_{LCO} ratio does not require knowledge of the specific conductance of blood for carbon monoxide http://ow.ly/o324L

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