Choosing the Correct Double-Lumen Tube: Why One Size Cannot Fit All Just Yet

To the Editor,

The study by Nguyen et al,[1] presents an interesting perspective on the use of double-lumen tubes (DLTs) for lung isolation. In spite of the availability of formulae based on radiological imaging to predict the appropriate sizes of DLT, using the height of the patient to choose the size is very popular among clinicians.[2,3] Using a 35Fr DLT for all their patients, the authors have tried to determine if it is indeed necessary to use different sizes of DLTs for adults.

The authors enumerate the various sizes of DLTs used in the “DLT based on height” group; however, the available demographic data do not elucidate how much the disparity was between the estimated size and the size used for the 35Fr group. Because the authors mention that there was no significant difference in the number of times that repositioning was required, we are led to understand the disparity was not so vast that the tubes were displaced.

Achievement of lung isolation with DLTs hinges on the achievement of a seal by inflating the cuff of the bronchial tube. The use of smaller DLTs could potentially be associated with a number of risks. The first amongst these is the requirement of larger volumes of air to create a seal. This increases the possibility of herniation of the endobronchial cuff and blockage of the opposite bronchus.[4] Higher volumes of air could also translate into higher pressures being transmitted to the mucosa and increased risk of ischemia and injury. It would therefore be essential to know the comparison of the average volumes of air in the bronchial cuffs, required to achieve isolation in both the 35Fr group and the “DLT based on height” group to know if the difference was significant.

Another theoretical risk with the use of smaller tubes is that of increased airway pressures and difficulty in suctioning to clear secretions.[5] The use of 35Fr DLT by the authors allays this risk because 35Fr is large enough to allow acceptable airway pressures and allow ease of suction.

Although it is encouraging to see that the authors did not find a significant impact on oxygenation, smaller tubes are also likely to have an impact on effective ventilation in addition to the impact on oxygenation. Hence, it would be desirable to know the end-tidal carbon dioxide (EtCO₂) or partial pressure of carbon dioxide (PaCO₂), which would help identify the adequacy of ventilation.

The use of larger tubes in larger patients allows a wider channel for rapid egress of gases and hence, faster lung isolation. The use of smaller tubes would also slow down the rate of collapse of the lungs.[3] It would be noteworthy to know the time required for lung collapse in both groups.

To conclude, although Nguyen et al, present a fascinating hypothesis that has the potential to create a pragmatic change in the conduct of one-lung ventilation, larger studies and additional data would be mandatory before such changes can be instituted in daily practice.

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Conflicts of interest
There are no conflicts of interest.

Gauri R. Gangakhedkar
Department of Anaesthesiology, Critical Care and Pain, Tata Memorial Hospital, Homi Bhabha National Institute, Mumbai, Maharashtra, India

Address for correspondence: Dr. Gauri R. Gangakhedkar, 13/14, Chandangad Apartments, Next to Rahul Nagar, Near Karve Putala, Kothrud, Pune - 411 038, Maharashtra, India. E-mail: gauri2903@gmail.com

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