Letters To The Editor

TO THE EDITOR: In response to the high-frequency oscillation (HFO) debate in the Journal of Applied Physiology (1, 2), we have seen a number of arguments put forward regarding the role of HFO in the treatment of patients with hypoxemic respiratory failure—from the physiological, research, and clinical perspectives and from the pediatric to adult perspectives. We note several consistent messages across the majority of these commentaries. First, from a theoretical perspective, and given our current understanding of the underlying pathophysiological mechanisms, HFO does indeed appear ideal to address and minimize ventilator-induced lung injury. In this regard Baumgardner et al. (3) remind us that we still have a lot to learn in terms of the pathophysiology of ARDS and specifically how this pathophysiology links with the physics of HFO. Second, outside the neonatal experience, there are currently insufficient clinical data to provide a judgment in either direction as to whether this theoretical advantage will be translated into differences in important clinical outcomes.

Finally, we agree completely with Drs. Froese, Villar, and Bollen (3); not only are further studies needed, but the way in which they are designed and the patient populations they enlist are of critical importance. We believe that at this stage we should be focused on explanatory trials, designed to explore efficacy at the clinical level. These trials would therefore be tightly protocolized, be carried out in centers with sufficient HFO experience or training, and would enroll patients that were most likely to benefit from this intervention (e.g., those with relatively severe ARDS, with significant amounts of derecruited/atelectatic/consolidated lung; ideally those with recruitable lungs); all designed to maximize the signal-to-noise ratio to determine if a clinical benefit does exist. If such a trial were to detect an improvement in outcomes, we could be confident that HFO does improve outcomes in ideal circumstance, and it could then lead to a pragmatic effectiveness trial.

REFERENCES


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