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LETTER TO THE EDITOR

Is it time to reconsider routine intubation in mild congenital diaphragmatic hernia?

¿Es momento de reconsiderar la intubación sistemática en la hernia diafragmática congénita leve?

Dear Editor:

Noninvasive ventilation (NIV) has been gaining acceptance in neonatal care on account of its potential to reduce the incidence of lung injury associated with invasive mechanical ventilation, even in complex conditions such as congenital diaphragmatic hernia (CDH). We have read with interest the scientific letter written by Pellicer et al.,[1] who evaluated the use of NIV in newborns with a prenatal diagnosis of CDH classified as mild based on the intraabdominal position of the liver, the observed/expected lung area to head ratio (O/E LHR), gestational age greater than 37 weeks, and absence of associated malformations. In this case series (n = 7), the NIV strategy was only successful in two patients (28.5%),[1] which suggests that prenatal classification may not be sufficient to predict the success of this approach. In fact, the authors did not report an association between the success or failure of NIV with the need of orotracheal intubation in newborns with an O/E LHR of up to 70%. In addition, classification of CDH as mild does not necessarily entail a sufficiently benign pathophysiology to forego securing the airway from birth. Attempting a conservative approach like NIV in such a clinically heterogeneous population continues to be a challenge.

In consequence, it is not possible to expect a survival of 100%, and these patients are still very likely to require high-frequency ventilation, inhaled nitric oxide, or even extracorporeal membrane oxygenation (ECMO), so initial decisions can have a significant impact on outcomes.[2] The spontaneous breathing approach had been previously described by Cochius-den Otter et al.,[3] who proposed that individualizing respiratory care could reduce overtreatment in this population, and found that NIV was successful in 6 of the 15 neonates in whom it was used (40%). More recently, Kipfmueller et al.[4] conducted a retrospective study including eight patients managed with NIV, which was successful in six (75%). The authors also made a comparison with matched controls receiving standard treatment (n = 16; immediate intubation), and found a reduction in length of stay, fewer days of mechanical ventilation and shorter duration of oxygen supplementation in the spontaneous breathing group. However, there is no clear explanation for the differences between the results of these two studies, and the one conducted by Cochius-den Otter et al. lacked a control group.

On the other hand, NIV-induced bowel loop distention may worsen pulmonary hypertension, which is one of the main determinants of morbidity and mortality in CDH. Furthermore, the continuous positive airway pressure (CPAP) and fraction of inspired oxygen (FiO_2) levels ($FiO_2 > 80\%$, $CPAP > 8\ cmH_2O$) and the criteria commonly used to define NIV failure make it difficult to determine whether the results are truly indicative of a successful NIV approach or a delay in intubation.[4] Although the results published by Kipfmueller et al. were better, there were also methodological limitations to their study, such as the small sample size and the potential for selection bias, so that better outcomes could reflect a lesser baseline severity rather than direct benefits of the spontaneous breathing approach.[5]

In a disease this complex, the benefits of this strategy have yet to be clearly established. Nevertheless, overtreatment could be avoided in low-risk patients by allowing crying and a brief period of spontaneous breathing after birth, always in combination with defined early goals, gentle ventilation, and optimal timing of surgery.

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Declaration of competing interest

The authors have no conflicts of interest to declare.

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