

High-flow nasal cannula failure in the Pediatric Emergency Department: Remarks and questions to explore the predictive factors

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To editor,

We have read with great interest this study "Predictive factors of high-flow nasal cannula oxygen therapy failure in children with respiratory distress treated in a Pediatric Emergency Department (ED)".¹ We congratulate Aydın et al. for their contribution to predictive factors of high-flow nasal cannula (HFNC) oxygen therapy failure in children. However, we think some points need to be taken into account for an adequate evaluation of the results.

Firstly, there are some points which need to be clarified regarding the population enrolled in this study. Medical history was coded into 4 binary variables defined by previous history which makes this group very diverse. We do not think that an atopic patient and a patient with muscular dystrophy will have the same clinical response to HFNC. Additionally, there may be some complications in ailments causing respiratory distress with HFNC.^{2,3} Some undesirable effects like septic shock, arrhythmia, and cardiopulmonary arrest may occur. We don't know what complications happened in the HFNC treated group.¹

Secondly, the patients admitted immediately to the intensive care unit (ICU), patients with cyanotic heart disease, craniofacial anomaly, skull base fractures, upper airway obstruction, and the patients who received oxygen therapy

at home were excluded. These factors may cause changes in the results.²

Thirdly, patients with pneumonia received salbutamol and steroids which are the main medication given to patients with bronchiolitis and are controversial in patients with pneumonia.^{2,3} This may raise questions about the effectiveness of HFNC therapy by putting these two different diseases into the same group as this may have influenced the results.¹

It would have also been interesting to know the duration of non-invasive and invasive mechanical ventilation in the successful or unsuccessful treatment groups, length of stay in the hospital and mortality.¹

Lastly, it would have been noteworthy to know the HFNC escalation or des escalation options^{2,3,4} such as was a reduction in respiratory rate and heart rate evaluated, when was oxygen flow and the percentage increased for patients with successful HFNC therapy and was the oxygen saturation above 94 percent in blood gas taken as the only threshold for success. In those who started on HFNC treatment, the markers at the 2nd hour were evaluated it would have been interesting to know what the status of those who improved in the second hour and then became worse after a few hours. It is unclear what the outcome was for those who improved with HFNC treatment and those who did not.^{1,4}

Further clinical trials need to confirm the impact of HFNC and these predictive factors in the emergency department.

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