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LETTER TO THE EDITOR
EDİTÖRE MEKTUP

An appraisal of high-flow nasal cannula oxygen therapy in hypoxic pulmonary embolism patients

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To the Editor,

We read the article by Alperen et al. with great interest, which compared the use of a high-flow nasal cannula (HFNC) with conventional nasal cannula oxygenation in patients with pulmonary embolism (PE) (1). Although the results were predictable, the study makes an outstanding contribution to controlling hypoxemia in PE patients. We applaud the work for its novelty; however, we believe a few aspects are worth consideration for the precise interpretation and clinical application of the results and device.

Interpretation of the improvement in oxygenation and respiratory parameters is critical. Factors determining work of breathing, respiratory drive, and causes of arterial hypoxemia like a ventilation-perfusion mismatch, venoarterial shunting, and even pulmonary edema in PE (2) need consideration for choosing an oxygen therapy method. Data on the ventilation-perfusion defects, pulmonary vascular resistance, and parameters from the echocardiographic evaluation could clarify these aspects and consolidate the improvement attributable to the HFNC use. The authors have rightly considered the need for echocardiography, and we believe the serial values of the parameters will put more insight into it.

Similarly, radiological findings in PE would be contributory and will help correlate with the HFNC efficacy and setting used.

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Further, we consider that the advantage of HFNC over non-invasive ventilation (NIV), even in the context of right ventricular strain, needs validation, directly or indirectly. The authors consider that HFNC has a lesser effect on the overload of the right ventricle, as it has less transmission of positive pressure than NIV; however, a continuous positive airway pressure-like (CPAP-like) effect is known with the use of the HFNC. Despite being treated with equal fractions of inspired oxygen, the patients in the HFNC group had better oxygenation than conventional groups, possibly indicating the CPAP-like effect's beneficial effect. While hypoxemia in mild cases of PE can be managed with low-pressure settings of CPAP or CPAP-like effect of HFNC, atelectasis developed in later days in the disease course and even contribution of pulmonary edema towards the hypoxemia in PE (3) might not be ameliorated by minimal pressure generated by HFNC. Nevertheless, mechanical effects on the terminal bronchioles while using NIV could maintain bronchial diameter during the respiratory cycle compared with HFNC.

Further, NIV has a beneficial role in pulmonary edema, and Bi-level can even help prevent alveolar atelectasis. While it was not within the ambit of the authors' study, it has significance in deciding the support method. We thank the authors for opening up a new horizon for future studies in this aspect; the authors' data on the aforementioned aspect can be of guidance.

Furthermore, although unpredictable, hemodynamics, especially cardiac output, use of inotropes relates to arterial hypoxemia in PE (4). The hemodynamic effect of the HFNC looks interesting, especially for those with severe PE. Thrombolysis was not feasible in the entire cohort due to various clinical reasons. Thrombolytics decrease pulmonary artery pressure and improve right ventricular function, pulmonary perfusion, and arteriovenous oxygenation (5). The authors' group did not differ in terms of thrombolytics received; however, it will be interesting to know whether the subgroup who received thrombolysis had differences in the respiratory improvement parameters among the groups. We believe that the data on the above aspects will help the scientific community, and welcome the authors' input.

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