

Uncommon complication of bilevel positive airway pressure

Sir,

A 60-year-old lady was admitted in the intensive care unit with shortness of breath. She was having coarse bilateral crepitations with saturation of 85% on pulse oximetry. She was diagnosed as a case of dilated cardiomyopathy with severe left ventricular dysfunction. Adrenaline infusion was started to optimize blood pressure. Frusemide was given as decongestive therapy. Bilevel positive airway pressure (BiPAP) with orofacial interface was applied with setting of inspiratory positive airway pressure 14 and expiratory positive airway pressure 7. After 1 h of therapy, saturation started improving; however patient started complaining of right ear pain. Otoloscopic examination revealed bulging right tympanic membrane. High positive airway pressure by BiPAP might have caused raised middle ear pressure leading to pain. BiPAP was applied after inserting well lubricated nasal airway size 7 mm in right nasal passage. Patient's ear pain gradually subsided and patient was much comfortable.

Noninvasive positive pressure ventilation is commonly used in the treatment of patients with acute respiratory failure.^[1] Noninvasive ventilation can avoid morbidity associated with invasive ventilation.^[2] The inspiratory positive airway pressure in BiPAP decrease the work of breathing and the expiratory positive airway pressure increase the functional residual capacity of the lung by recruiting collapsed alveoli. Common complication of BiPAP such as mask related minor injury to the skin of the face (laceration, ulcer) occurs in approximately 13% of patients.^[3] Other complications include irritation to the eyes from the mask ventilation, irritation to the nasal mucosa, or drying of the upper airway passages, gastric distention (incidence rate, 2%).^[4] Positive airway pressure delivered by BiPAP can cause rise in middle ear pressure through eustachian tube as in the present case. It can predispose patient to otitis media and trauma to middle ear structures. In the present case, such complications were avoided by using nasal airway

which protected the eustachian tube from transmitting the airway pressure. We do not propose to insert nasal airway in every patient on BiPAP but can be considered in patients complaining of ear pain and history of repeated ear infections. One could also reduce the airway pressure setting to reduce the pressure in the middle ear.

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Conflicts of interest

There are no conflicts of interest.

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