

Discontinuing noninvasive ventilation in severe chronic obstructive pulmonary disease exacerbations: a randomised controlled trial

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Abstract

We assessed whether prolongation of nocturnal noninvasive ventilation (NIV) after recovery from acute hypercapnic respiratory failure (AHRF) in chronic obstructive pulmonary disease (COPD) patients with NIV could prevent subsequent relapse of AHRF. A randomised controlled trial was performed in 120 COPD patients without previous domiciliary ventilation, admitted for AHRF and treated with NIV. When the episode was resolved and patients tolerated unassisted breathing for 4 h, they were randomly allocated to receive three additional nights of NIV (n=61) or direct NIV discontinuation (n=59). The primary outcome was relapse of AHRF within 8 days after NIV discontinuation. Except for a shorter median (interquartile range) intermediate respiratory care unit (IRCU) stay in the direct discontinuation group (4 (2-6) *versus* 5 (4-7) days, p=0.036), no differences were observed in relapse of AHRF after NIV discontinuation (10 (17%) *versus* 8 (13%) for the direct discontinuation and nocturnal NIV groups, respectively, p=0.56), long-term ventilator dependence, hospital stay, and 6-month hospital readmission or survival. Prolongation of nocturnal NIV after recovery from an AHRF episode does not prevent subsequent relapse of AHRF in COPD patients without previous domiciliary ventilation, and results in longer IRCU stay. Consequently, NIV can be directly discontinued when the episode is resolved and patients tolerate unassisted breathing.

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