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Title: Efficacy and safety of continuous sedation for agitated patients under noninvasive ventilation

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Body: Introduction: Sedation is often required for agitated patients under noninvasive ventilation (NIV). However, there have been few reports on use of continuous sedation in these patients. Aims: To evaluate the efficacy and safety of continuous sedation for agitated patients under NIV. Methods: We retrospectively reviewed 110 patients receiving NIV for acute respiratory failure from May 2007 to December 2011, who needed sedation for treatment of agitation. Difference in clinical outcomes was compared between continuous use group and intermittent use group, according to do-not-intubate (DNI) status (n=73) or non-DNI status (n=37). Results: In non-DNI patients, the severity assessed by baseline P/F ratio and mortality were similar between continuous use group (n=10) and intermittent use group (n=27) (117±66 mmHg vs. 116±50 mmHg, p=0.95 and 10% vs. 22%, p=0.40). No patient in continuous use group required intubation due to agitation, while three patients in intermittent use group required intubation due to failure of sedation (0% vs. 11%, p=0.54). In DNI patients, baseline P/F ratio was lower and the mortality was higher in continuous use group (n=33) compared with intermittent use group (n=40) (113±51 mmHg vs. 151±82 mmHg, p=0.017, and 85% vs. 58%, p=0.011). Only one patient in continuous use group failed to continue NIV due to agitation. Patients with continuous sedation were safely managed under NIV with the level of sedation assessed by Richmond Agitation Sedation Scale, except only one adverse event of hypotension caused by midazolam. Conclusions: Continuous sedation could be safely administered, and potentially prevent undesirable intubation due to persisting agitation under NIV.