**Supplemental Table 2 Characteristics of noninvasive ventilation application for the included patients**

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| Trial | NIV Protocol | Oxygen-therapy Protocol | NIV Duration |
| **Jaber et al., 2016 [9]** | IPAP: 5-15 cm H2O aiming to achieve an expiratory tidal volume between 6 and 8ml/kg of predicted body weight and RR lower than 25/minPEEP: 5-10 cm H2O and inspired oxygen fraction were titrated to maintain a SpO2 of at least 94% | up to 15L/min to maintain an SpO2 of at least 94% | At least 6 hours, continuously or intermittently, during the first 24 hours after randomization. |
| **Lemiale et al., 2015 [22]** | The pressure support level was adjusted to obtain an expired tidal volume of 7-10 mL/kg of ideal body weight, with an initial PEEP between 2 and 10 cm H2O. The FiO2 and PEEP levels were adjusted to maintain the SpO2 at 92% or greater. | 9 L/min (interquartile range, 6-15) | A 60-minute session every 4 hours, for at least 2 days. |
| **Frat et al., 2015 [10]** | The pressure-support level was adjusted with the aim of obtaining an expired tidal volume of 7-10 ml/Kg of predicted body weight, with an initial PEEP between 2 and 10 cm water. The FiO2 or PEEP level (or both) were then adjusted to maintain a SpO2 of 92% or more | 10 L/min, the rate was adjusted to maintain a SpO2 level of 92% or more. | 8 hours minimally per day for at least 2 days. Noninvasive ventilation was applied during sessions of at least 1 hour and could be resumed if the RR was more than 25/min or the SpO2 was less than 92%. |
| **Brambilla et al., 2014 [8]** | CPAP was delivered through a high-flow generator (90–140 L/min) with initial PEEP of 10 cm H2O and with an FiO2 set to maintain a SpO2 of at least 92 % | Standard oxygen therapy was supplied through a Venturi mask with a FiO2 delivered to maintain a SpO2 of at least 92 % | CPAP was continued till the achievement of clinical stability |
| **Zhan et al., 2012 [19]** | EPAP was initially set at 4 cm H2O and increased by 1–2-cm H2O increments up to a patient’s maximum tolerance. FIO2 was set to maintain SpO2 at 92% to 96%. IPAP was adjusted by increments of 2 cm H2O to obtain a tidal volume >6 mL/kg every 5 to 6 mins or to the maximum tolerated level for each patient (maximum 10 mL/kg) | Adjust the oxygen flow rates to maintain SpO2 at 92% to 96% | An average period of 3 days (range, 2–35 days) |
| **Squadrone et al., 2010 [20]** | oxygen at an FiO2 of 0.5 plus a CPAP of 10 cm H2O | oxygen through a Venturi mask at an FiO2 of 0.5 | 4-day periods consisting of at least 12 consecutive hours per day after with a 6-h screening test through a Venturi mask with FiO2 0.3. After evaluating, patients were returned to the assigned treatment for another 4-day period |
| **Squadrone et al., 2005 [21]** | CPAP was generated using a flow generator with an adjustable FiO2 set to deliver a flow of up to 140 L/min with oxygen at an FiO2 of 0.5 plus a CPAP of 7.5 cm H2O | treated for 6 hours with oxygen through a Venturi mask at an FiO2 of 0.5 | After 6-hour period, patients underwent a 1-hour screening test breathing oxygen through a Venturi mask at a FiO2 of 0.3. After evaluation, treatment was interrupted if the PaO2/FiO2 ratio was higher than 300 |
| **Ferrer et al., 2003 [24]** | Using the bi-level positive airway pressure mode; FiO2 was set to achieve a SpO2 of more than 92% or a PaO2 of more than 65 mmHg | The FiO2 was set to achieve SpO2 of more than 92% or PaO2 of more than 65 mm Hg | NIV was continuously delivered after entry into the study as much time as possible |
| **Hilbert et al., 2001 [23]** | The level of pressure support was adjusted to obtain an expired tidal volume of 7 to 10 ml/kg of body weight and RR＜25 /min; PEEP was increased by 2 cm of water, up to a level of 10 cm of water, until the FiO2 requirement was 65 % or less. The FiO2 was adjusted to maintain SpO2>90% | Received oxygen supplementation via a Venturi mask to achieve a level of SpO2 above 90% | Periods of noninvasive ventilation lasted at least 45 minutes and alternated every 3 hours with periods of spontaneous breathing |
| **Delclaux et al., 2000 [25]** | Deliver a flow rate (0-130 L/min) that could be adjusted to the patient’s inspiratory flow requirement, with an adjustable FiO2 within the 34%-100% range; a fixed PEEP (5, 7.5, or 10cm H2O) | Receive oxygen to achieve a level of SpO2 above 90% | For at least the first 6 to 12 hours, CPAP was given continuously and then discontinuously based on patient tolerance and on whether the SaO2 was greater than 90% under oxygen alone |
| **Antonelli et al., 2000** **[26]** | Pressure support was increased to obtain an exhaled tidal volume of 8-10ml/Kg, a RR≤25/min, the disappearance of accessory muscle activity and patient comfort. PEEP was increased in increments of 2 to 3 cm H2O repeatedly up to 10cm H2O until the FiO2 requirement was 0.6 or less | Received oxygen supplementation via a Venturi mask starting with a FiO2 ≥ 0.4, and adjusted to achieve a level of SpO2 above 90% | During the first of 24 hours, ventilation was continuously maintained until oxygenation and clinical status improved. Subsequently, each patient was evaluated daily while breathing supplemental oxygen without ventilator support for 15min  |

NIV, noninvasive ventilation; PEEP, positive end expiratory pressure; EPAP, expiratory positive airway pressure; IPAP, inspiratory positive airway pressure; FiO2, fraction of inspired oxygen; RR, respiratory rate; PaO2/FiO2, arterial oxygen partial pressure to fractional inspired oxygen; SpO2, pulse oximetry; CPAP, continuous positive airway pressure