

Supplemental Digital Content 1: Supplemental Text 1. Details of data collection

At ICU admission:

- Demographic and baseline data: age, sex, height, weight, body mass index, reasons for ICU admission (cerebral tumor, head trauma, subarachnoid and intracerebral hemorrhage), total and subscores of Glasgow coma scale (verbal component was deemed as 1), and APACHE II.
- Perioperative data: preoperative American Society of Anesthesiologists classification, emergency operation (yes or no), duration of operation, intraoperative bleeding.
- Medical history: hypertension (yes or no), coronary artery disease (yes or no), diabetes mellitus (yes or no), cerebrovascular disease (yes or no), smoking (yes or no), and alcoholism (yes or no).

On the first day of mechanical ventilation and from the first successful spontaneous breathing trial to extubation:

- Physiological parameters: vital signs, total and subscores of Glasgow coma scale (verbal component was deemed as 1), partial pressure of alveolar oxygen/fraction of inspiration oxygen (PAO₂/FIO₂), rapid shallow breathing index, ventilator modes and parameters, 24-hour fluid input and output, blood gas analysis, and the use of sedation and analgesia (yes or no).

Vital signs, Glasgow coma scale, and ventilator parameters were recorded at 8 am which was the time for extubation decisions making. The highest temperature of each day was recorded.

- Airway function assessment: swallowing, tongue protrusion, spontaneous cough, and suctioning cough. It was assessed by two respiratory therapists according to the same criteria without informing clinicians.
- If delayed extubation occurred: delayed extubation days (time between the first successful spontaneous breathing trial and extubation), reasons for delayed extubation.

After extubation:

- Clinical outcomes: time to initiation of weaning, time to the first successful

spontaneous breathing trial, duration of mechanical ventilation, tracheostomy (yes or no), length of stay in the ICU and hospital, nosocomial pneumonia (yes or no), mortality, and costs.

Nosocomial pneumonia was defined as the presence of a new or a progressive radiographic infiltrate along with at least two of three clinical features: fever greater than 38°C, leukocytosis (white blood cell [WBC] > 12000/ml) or leukopenia (WBC < 4000/ml) and purulent secretions.

- If extubation failure occurred: time of reintubation (time between extubation and reintubation), reasons for extubation failure (upper airway obstruction/excess airway secretions/decreased consciousness/respiratory failure/cardiac failure/other reasons).