Positive end-expiratory pressure

- Effect of prone position on cerebral hemodynamics and noninvasive intracranial pressure assessed using transcranial Doppler in patients undergoing spine surgeries: a prospective observational study
- Intracranial response to positive end-expiratory pressure is influenced by lung recruitability and gas distribution during mechanical ventilation in acute brain injury patients: a proof-of-concept physiological study
- Predictive modeling of aneurysmal subarachnoid hemorrhage with acute lung injury complicating delayed cerebral ischaemia
- Comparative Analysis of 5 cmH_2O Versus 10 cmH_2O PEEP on Cerebral Oxygen Saturation in Brain Tumor Surgery: A Randomized Controlled Clinical Study
- A Case Series Study of Airway Pressure Release Ventilation in Patients with Intracranial Pathologies and Acute Respiratory Failure
- Ventilation practices in acute brain injured patients and association with outcomes: the VENTIBRAIN multicenter observational study
- Idiopathic pulmonary arteriovenous malformation: a rarity in clinical practice
- Management of traumatic brain injury and acute respiratory distress syndrome-What evidence exists? A scoping review

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Patients with brain damage often require mechanical ventilation. Although lung-protective ventilation is recommended, the application of increased positive end-expiratory pressure (PEEP) has been associated with elevated intracranial pressure (ICP) due to altered cerebral venous return.

Neurocritical care (NCC) is not only generally guided by principles of general intensive care but also directed by specific goals and methods. A review by Wen et al. summarizes the common pulmonary diseases and pathophysiology affecting NCC patients and the progress made in strategies of respiratory support in NCC. This review highlights the possible interactions and pathways that have been revealed between neurological injuries and respiratory diseases, including the catecholamine pathway, systemic inflammatory reactions, adrenergic hypersensitivity, and dopaminergic signaling. Pulmonary complications of neurocritical patients include pneumonia, neurological pulmonary edema, and respiratory distress. Specific aspects of respiratory management include prioritizing the brain protection, and the goal of respiratory management is to avoid inappropriate blood gas composition levels and intracranial hypertension. Compared with the traditional mode of protective mechanical ventilation with low tidal volume (Vt), high positive end-expiratory pressure (PEEP), and recruitment maneuvers, low PEEP might yield a potential benefit in closing and protecting the lung tissue. Multimodal neuromonitoring can ensure the safety of respiratory maneuvers in clinical and scientific practice. Future studies are required to develop guidelines for respiratory management in NCC [1].

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Wen J, Chen J, Chang J, Wei J. Pulmonary complications and respiratory management in neurocritical care: a narrative review. Chin Med J (Engl). 2022 Apr 5;135(7):779-789. doi: 10.1097/CM9.0000000000001930. PMID: 35671179.