Ventilator-associated pneumonia

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The brain and lungs strongly interact via complex pathways from the brain to the lungs but also from the lungs to the brain. The main pulmonary disorders that occur after brain injuries are neurogenic pulmonary edema, acute respiratory distress syndrome, and ventilator-associated pneumonia, and the principal brain disorders after lung injuries include brain hypoxia and intracranial hypertension. All of these conditions are key considerations for management therapies after traumatic brain injury and need exceptional case-by-case monitoring to avoid neurological or pulmonary complications ¹⁾.

Prevention

Care bundles for Ventilator-associated pneumonia (VAP) have been shown to minimize the rate of VAP in critically ill patients. Standard care bundles may need to be modified in resource-constrained situations. The goal of a study was to see if a modified VAP-care bundles lowered the risk of VAP in neurosurgical patients.

A prospective cohort study was conducted in mechanically ventilated neurosurgical patients. The VAP bundle was adjusted in the cohort group by increasing the frequency of intermittent endotracheal tube cuff pressure monitoring to six times a day while reducing oral care with 0.12% chlorhexidine to three times a day. The rate of VAP was compared to the historical control group.

A total of 146 and 145 patients were enrolled in control and cohort groups, respectively. The mean age of patients was 52 ± 16 years in both groups (P=0.803). The admission Glasgow coma scores were 7.79 ±2.67 and 7.80 ±2.77 in control and cohort group, respectively (P=0.969). VAP was found in nine patients in control group but only one patient in cohort group. The occurrence rate of VAP was significantly reduced in cohort group compared to control group (0.88/1,000 vs. 6.84/1,000 ventilator days, P=0.036).

The modified VAP bundle is effective in lowering the VAP rate in critically ill neurosurgical patients. It requires low budget and manpower and can be employed in resource-constrained settings²⁾

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