Observation on the Effect of Optimized Process Nursing in Neurocritical Patients After Weaning from Mechanical Ventilation

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Abstract

Objective: To observe the effect of optimized process nursing on neurocritical patients after weaning from mechanical ventilation.

Methods: This study selected 149 neurocritical patients who underwent endotracheal intubation and mechanical ventilation in the ICU from January 2023 to December 2024 through a retrospective analysis and a prospective intervention. 74 patients admitted from January 2023 to December 2023 were included in the control group, receiving routine nursing care. 75 patients admitted from January 2024 to December 2024 were included in the observation group, receiving routine nursing care to prevent post-weaning complications, mainly including routine suctioning, nebulization therapy, nutritional support, and basic rehabilitation training. The experimental group implemented an optimized protocol based on the existing process. The optimizations included individualized weaning assessment, enhanced airway management, individualized nutritional support, early respiratory muscle training, and rehabilitation intervention. The incidence of complications such as pulmonary infection, airway obstruction, and respiratory failure, as well as the length of ICU stay and average recovery time after weaning, were observed in both groups.

Results: The optimized nursing process significantly reduced the incidence of respiratory complications after weaning in neurocritical care patients on mechanical ventilation, with significant decreases in pulmonary infection, airway obstruction, and respiratory failure. The length of ICU stay and recovery time after weaning were also shortened. The differences were statistically significant ($P < 0.05$).

Conclusion: Optimized nursing processes can reduce the occurrence of respiratory complications after weaning in neurocritical care patients on mechanical ventilation and promote patient recovery.

Comparison of complication rates between the study group and the control group (cases, incidence %)

Group	Pulmonary infection	Airway obstruction	Respiratory failure	Incidence
Control group (n=74)	11 (14.86)	8 (10.81)	9 (12.16)	28 (37.84)
Experimental group (n=75)	4 (5.33)	3 (4.00)	3 (4.00)	10 (13.33)
χ^2 value	-	-	-	11.772
P value	-	-	-	<0.001

Comparison of ICU stay and recovery time between the study group and the control group (d, x-±s)

Groups	ICU stay duration	Recovery time
Control group (n=74)	10.52 ± 2.31	21.25 ± 2.02
Experimental group (n=75)	8.20 ± 1.53	19.10 ± 1.53
T value	7.237	7.330
P value	<0.001	<0.001