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The effect of cycling exercise in patients on mechanical ventilation at Intensive Care

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Background: Prolonged critical illness renders survivors with increased long-term morbidity associated with high healthcare costs. Muscle weakness and fatigue are reported as the main contributors to long-term poor functional outcomes. Emerging evidence for early mobilisation demonstrates reduction in the number of ventilator days and hospital length of stay. It has been demonstrated that daytime motoring (passive and active) can improve functional capacity in intensive care patients. The aim of the proposed study is to evaluate the effect of cycling exercise in patients on mechanical ventilation appointed to weaning process.

Methods: This prospective randomized study is being performed at the Department of Anesthesiology, Resuscitation and Intensive Care (CARIC) of the University Hospital Ostrava.

All mechanically ventilated patients are followed. At the time of weaning initiation, the randomization into two groups (the study (cycling) and control group) is performed. The physiotherapy will be carried out twice a day in both groups according to the mobility protocol. The cycling exercise is performed only in the study group, once a day. Before a patient is released from the ICU, a cycling test, dynamometry test will be performed in both groups.

Results: A significant effect of early initiation within 48 hours of rehabilitation in patients with artificial lung ventilation using the mobility protocol was demonstrated. The use of motomed for physiotherapy will help to increase muscle strength in a shorter physiotherapy interval.

Conclusion: Early initiation of physiotherapy in patients with artificial lung ventilation within the mobility protocol will improve muscle strength. The use of cycling during early mobilzation can help to increase muscle strength.

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