

Abstract

Introduction: Muscle weakness is a manifestation of multi-organ dysfunction at peripheral nerve and muscle level, and its severity is that it prolongs weaning and reduces rehabilitation options in critically ill patient. New approaches to the treatment of critically ill patient lie primarily in their early mobilization, and one of the possibilities of this early mobilization is functional muscle stimulation. Functional electrical stimulation can generate muscle contraction in critically ill patient, which can lead to muscle growth and reduce muscle weakness in critically ill patient. However, the precise effects of functional electrical stimulation are not yet known.

Aim: The aim of this bachelor's thesis is to determine whether the method of functional electrical stimulation can influence muscle atrophy in critically ill patients. Attention is focused on whether the period of hospitalization in the intensive care unit and the time when patient is mechanically ventilated will significantly affect the outcome of his treatment and also whether the electrical stimulation reduces the loss of muscle mass in critically ill patients.

Methods: Literary research using PRISMA (Preferred Reporting Item for Systematic Reviews and Meta-Analyses).

Results: The positive effect of functional electrical stimulation for the duration of hospitalization in the intensive care unit was demonstrated in total of 114 patients and for a period of ventilation in 74 patients in three independent trials, on the other hand, a negative effect on duration of hospitalization in the intensive care unit and ventilation period had functional electrical stimulation in 12 patients in one study.

Conclusion: Functional electrical stimulation can preserve the muscle mass of critically ill patients, has a positive effect on the time of inpatient care at the intensive care unit, and when the patient is critically ill, mechanically ventilated. The research suggests that this is a safe method, which can be applied preventively at the moment of early rehabilitation for critically ill patients.

Key words: muscle weakness, critically ill, rehabilitation, functional electrical stimulation, immobilization syndrome, muscle atrophy.