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Critical Illness Polyneuromyopathy and Physical Rehabilitation

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ABSTRACT

Critical illness polyneuromyopathy occurs in patients with severe acute aggression that is life-threatening and is managed in intensive care unit. It most often affects patients free from any previous neurological pathology. The two main risk factors are severe multi-organ failure and muscle immobilization. This complication can be prevented by early passive and active rehabilitation programs even in ventilated patients.

INTRODUCTION

Critical illness polyneuromyopathy is a frequent complication of critical illness, acutely and primarily affecting the motor and sensory axons. This disorder occurs in patients with severe acute aggression that is life-threatening and is managed in intensive care unit. It most often affects patients free from any previous neurological pathology.

The two main risk factors are severe multi-organ failure and muscle immobilization.

This complication can be prevented by early passive and active rehabilitation programs even in ventilated patients.

In this paper, we report a case of a patient who suffered from Critical illness polyneuromyopathy with good recovery after physical rehabilitation.

CASE STUDY

This is a 51 year old patient, followed for asthma since childhood, who was admitted to intensive care for severe acute asthma complicated by septic shock with multiorgan failure. The patient stayed 2 months in the intensive care unit. At its exit, the patient was sent to us for management of his critical illness polyneuromyopathy. On examination: Tetraparesis with respect of face muscles; decrease of osteo-tendinous reflexes, without sensory disorder, Muscle Strength Grading: superior limbs rated at 2/5 and inferior at less than 1/5. The patient have benefited from a functional rehabilitation protocol based on passive mobilization, assisted-active and then active, respiratory physiotherapy, verticalization, management of decubitus complications and muscle strengthening techniques. Two months later, our patient was walking with Muscle Strength Grading overall to 4/5 for the 4 members.

DISCUSSION

In intensive care, many factors contribute to the development of critical illness polyneuromyopathy, such as inflammatory reactions, multiorgan failure, corticosteroids and prolonged mechanical ventilation [1, 2]. Patient's deep sedation, and more particularly bed rest and immobilization, are also associated with occurrence of these neuromuscular disorders [3]. Functional rehabilitation plays an essential role in prevention and management of critical illness neuromyopathy, which can compromise physical and functional evolution and quality of life of patients in short and long term. Early rehabilitation helps to prevent peripheral muscle deconditioning, joint stiffness and initiates retraining of skeletal muscles. It also makes possible modification of pulmonary volumes distribution by posture changing during rehabilitation's exercises, favoring bronchial decluttering and communication [4,5]. Despite limited number of studies on rehabilitation in intensive care,

recent studies with a large sample show a real impact of length of stay in intensive care, duration of mechanical ventilation, muscle recovery and recovery of autonomy [6].

CONCLUSION

Value of early rehabilitation seems essential to minimize risk of definitive disability. However, there is still a lack of studies and work to evaluate potential preventive and curative effects of a specific rehabilitation protocol in patients with neuromuscular complications after intensive care hospitalization.

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