



Early Mobilisation: How, When and Who



Early physical therapy is recommended in ICU guidelines, but detail on the actual physical therapy is lacking, according to the authors of a systematic review, published online in *Anaesthesia, Critical Care & Pain Medicine*. H el ene Laurent, from the Physical Medicine and Rehabilitation Department at Clermont-Ferrand University Hospital, and colleagues, reviewed the literature on how to implement early exercise, for which patients and what benefit.

Results

Twenty-two studies were included in the qualitative analysis (19 randomised controlled trials, two case series and one retrospective trial). The studies examined safety and efficacy of early physical therapy on the occurrence of polyneuropathy, microcirculatory, respiratory, peripheral muscle and functional criteria as well as long-term indicators. The studies had no information on sedation management, details on ventilatory support or parameters used during exercise. Few studies assessed long-term outcomes.

Multimodal strategies were most often used, comprising a combination of upper and/or lower limb training plus functional (e.g. sitting in bed, deambulation) or respiratory muscle training (i.e., chest physical therapy). Not enough detail was given in these studies to allow others to reproduce the protocols, write Laurent and her co-authors.

See Also: [Physiotherapy Services in the Australian ICU](#)

Recommendations and Next Steps

Laurent and co-authors conclude that the effects of specific exercise types need to be better described, and interventions need to be structured and well described. The process for selecting patients who can benefit from early exercise needs to be evaluated and improved as does the timing, intensity and frequency of exercise.

They write: "ICU teams must formulate algorithms to help physical therapists and nurses to promote the right exercise at the right time, as well as according to illness and sedation status." Targeted upper limb training is important, starting from passive range of motion exercises and although muscle electrical stimulation has

limited evidence, it appears to be safe and well tolerated. Assessing the benefits of early exercise remains a challenge, and they recommend development of appropriate evaluation scores. They state that their results underline the heterogeneity of the targeted populations, a lack of precision concerning eligibility criteria, program modalities, the timing of program initiation, progression and stopping criteria, adding that this “highlights the importance of clinical stability or instability when determining patient eligibility for exercise programs.”

Laurent and her co-authors conclude: “Changes in the professional culture of multidisciplinary-ICU teams are necessary as concerns early exercise. Physical therapists must be involved and their essential role in the ICU is clearly justified.”

Systematic Review of Physical Rehabilitation Interventions

Bronwen Connolly, from the Lane Fox Respiratory Unit, St. Thomas' Hospital, London, UK and colleagues, on behalf of the Enhanced Recovery After Critical Illness Programme Group, synthesised the systematic review evidence for physical rehabilitation interventions for patients with critical illness across the recovery continuum. Five systematic reviews of randomised controlled trials (RCTs) are included in the study, published in Thorax.

Findings

Their findings confirm evidence of benefit in short-term outcomes from interventions delivered in the early stages of critical illness while in the ICU. These included moderate-to-high quality evidence of the beneficial effects of physical therapy, including early mobilisation, cycle ergometry and electrical muscle stimulation, on critical illness polyneuropathy/myopathy, quality of life, mortality and healthcare utilisation. Two reviews looked at electrical muscle stimulation, where the evidence was low quality for the effects on muscle strength, muscle structure and critical illness polyneuropathy/myopathy. The varied study designs and intervention protocols makes a precise therapeutic prescription impossible, they write. They found no evidence to conclude benefit from interventions delivered post-ICU discharge, due to the lack of studies.

Recommendations for Future Trials

Connolly and colleagues recommend that future studies include long-term follow-up as well as short-term assessment. Further studies are needed on physical rehabilitation interventions delivered post-ICU discharge. They also recommend that early rehabilitation is clearly defined so that effects of interventions can be interpreted. Adverse events should also be reported. They state that electrical muscle stimulation requires further evidence on effectiveness and studies are needed to measure functional outcomes of physical rehabilitation interventions.

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Published on : Fri, 24 Jun 2016