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Early Mobilization Program in the Intensive Care Unit (ICU) – A Preliminary Report on Safety and Effectiveness

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Introduction

Immobility and Intensive care unit (ICU)-acquired weakness are responsible for significant long-term impairment in critically ill patients. To counteract these effects there has been an increasing move towards early rehabilitation in ICU. Several studies have indicated that early mobilization in the ICU is feasible and safe. It can also improve functional status at hospital discharge. Structured mobility protocols have shown to reduce length of stay (LOS) in ICU with early physiotherapy intervention. For the first phase, we kickoff the program in patients undergoing open hepatobiliary surgeries (HBS) and requiring post-operative ICU care. An early mobilization protocol was established and its effectiveness was evaluated.

Objectives

To evaluate the effectiveness of Early mobilisation program and its feasibility.

Methodology

An initial 2-month investment period was allowed for the physiotherapist to introduce the programme to the ICU nursing staff, physicians and surgeons. An exercise protocol was established which was based on patients' conscious level and strength of large muscle groups. The 4-level protocol embraced progressive regime which ranged from passive range of motion therapy, neuromuscular electrical stimulation, muscle strengthening exercise to upright activities such as sitting at bedside, standing exercise and ambulatory training. Patients receiving open HBS were screened for the programme during ICU stay. Patients with unstable haemodynamic; frequent desaturation; recent acute myocardial injury or arrhythmia and recent administration of inotropic agents were excluded. The exercise prescription and progression were conducted by physiotherapist. Upon discharge from ICU, the progress of patients was followed in general wards. The LOS in ICU, post-operative LOS, mobility status at discharge and discharge destination were collected. Any adverse events such as dislodgement of tubes and unexpected change in vital signs were recorded.

Result

Over the 6 months startup period, 9 patients were recruited in the programme. This cohort included 55% of male and 45% of female with a mean age of 64 ± 9.9. 55% of patients started ambulation training at post-operative day 3. The median of LOS of this particular patient group in ICU is 3 days. The median post-operative LOS was 8 days, which was shorter than the reported LOS of patients with same diagnosis without early mobilization program of 9 days in 2011. Neither dislodgement of lines, fall nor deterioration in vital sign was reported during the intervention period. All of the patients were able to resume pre-morbid mobility status and were discharged home. Conclusion: Physiotherapy is an integral part of the management of patients in intensive care unit. This preliminary report is able to demonstrate that early mobilization in ICU is safe and potentially beneficial to the outcome of critically ill patients. More detailed evaluation and comparison will be continued. The putative benefits of early mobilization in other populations of critically ill patients will also be explored in the future.