



HOW EARLY MOBILISATION OF CRITICAL CARE PATIENTS IMPROVES OUTCOMES

Associate Professor and Clinical Academic Physiotherapist for critical care at University Hospitals Coventry and Warwickshire NHS Foundation Trust, Dr David McWilliams, talks to Hillrom about his thoughts and experiences on the importance of early mobilisation of critical care patients - both before and during the COVID-19 pandemic.

Why is implementing early and structured rehabilitation within critical care important?

Delays in the initiation of rehabilitation for patients admitted to ICUs are associated with an increased risk of the development of ICU-acquired weakness, which can have a significant negative impact on these patients' overall outcome long-term. Additional secondary complications associated with immobility include ventilator-acquired pneumonia (VAP), pressure ulcers and delirium which can all prolong a patients' stay in intensive care. After approximately 10 days in the ICU, it has been suggested that overall outcomes become less dependent on the primary reason for admittance and more dependent on complications and treatment during the ICU stay.

Extensive studies into early mobilisation have found a strong correlation between muscular weakness and prolonged mechanical ventilation, with evidence to support mobilising patients earlier can decrease the time taken to wean from mechanical ventilation, whilst also improving overall muscle strength and other functional outcomes. There is also evidence that early mobilisation decreases the average length of stay in both ICU and the hospital, reduces levels of delirium and leaves patient with a greater walking ability by the time they are discharged.

What are the clinical implications when early mobilisation is delayed?

The clinical implication of a delay in early mobilisation and rehabilitation is a negative impact patient recovery in both the short and long term. Delays in early patient mobilisation can have a detrimental impact on a patients' physical status and a depletion of physiological reserves, in turn impacting their ability to wean from mechanical ventilation. In the longer term, this will impact the patients' functional outcome as the longer a patient stays inactive whilst receiving mechanical ventilation, the weaker their respiratory system becomes. Other underlying issues can also then lengthen the recovery process such as, muscle atrophy and deconditioning, swallowing dysfunction and malnutrition..

Is there a psychological impact that comes from delayed patient mobilisation?

Delayed patient mobilisation does not just impact on the physical recovery, it also has a huge psychological impact. Patients that have been sedated or kept in medically induced comas often come round incredibly sleep deprived, leaving them disorientated and confused. In addition, this sedation combined with the effects of other medications, limits the patients ability to lay down 'short term' memories, leaving them with little to no recollection or familiarity of where they are, how they became admitted or what is happening to them.

A patient's profoundly weakened physical state adds to this as there is a self-perception that they are at their pre-admittance state with no recollection of why they are in hospital. Naturally, this can be incredibly traumatic for patients.

As a result, when patients are weaned off a ventilator and moved out of an ICU, they are often still in a very dependent, weakened state with high psychological morbidity. Trying to restore these patients to a normal level of function can take a long time. Taking all these complex issues into account, it comes as no surprise that of these long stay patients only 50% are back at work after a year. Sadly, many are left with ongoing physical and mental morbidity which can last for years.

Are there any significant differences between patients that are Covid-19 positive and non Covid-19 patients?

Early international experience has suggested a significant number of patients admitted to ICU with a confirmed diagnosis of COVID-19 were paralysed, often combined with prone positioning for up to 16 hours per day to optimise ventilation and gas exchange. This would increase the likelihood of developing ICU-acquired weakness and neuropathy, alongside an increased risk shoulder dysfunction or neurological injury to the upper limbs. Due to the high severity of illness, COVID-19 positive patients typically require prolonged periods of sedation and mechanical ventilation, again increasing the risk of physical and psychological morbidity.



Long stay patients within ICU are at high risk of developing psychological morbidity, delirium, and cognitive dysfunction. For patients with COVID-19 this psychological impact will likely be further exacerbated by the restrictions on visits from family and friends, being treated by staff wearing full PPE, combined with the practicalities around space and movement i.e. with capacity at ICU full there is less room for mobility. To help overcome some of these challenges, staff have used video calls and communication as appropriate, however it clearly doesn't have the same impact as a patient having their support system at the bedside to gently and consistently encourage them. There have been some reports of patients experiencing 'survivor's guilt', as the nature of how COVID-19 is spread meant that many patients had friends or family that had also suffered from COVID but perhaps did not survive.

What are the barriers/challenges clinically to starting early mobilisation for both patient groups? What are the strategies for overcoming the barriers?

To improve the levels of early mobilisation across NHS Trusts, there needs to be key analysis on identifying what the current main barriers are restricting early patient mobilisation. Stretched staffing levels, having access to appropriate equipment, the sometimes-cultural perception that a critically ill patient should not be moved, and a lack of structured or formal multidisciplinary team communication, are all restrictive to facilitating early mobilisation. These barriers are all multi-factorial and vary between countries, hospitals, ICUs and even between ICUs within the same hospital. By analysing and identifying what these barriers are, strategies can be developed to overcome them. Engaging with stakeholders, looking at the challenges within practice, education on safety parameters and then creating collaborative teams with clear leadership, good communication and protocols on education and training are some key first steps of improving knowledge and awareness of the importance of early mobilisation.

Sharing good practice on easily accessible forums is also a quick and cost-effective way of educating and preparing healthcare experts in other Trusts and areas. When COVID-19 first became a reality in the UK, professionals were keen to share their experiences, knowledge,

and learnings with those who were yet to see a COVID-19 case. These were shared on publicly accessible platforms like the websites for the Association of Chartered Physiotherapists in Respiratory Care (ACPRC) and the European Society of Intensive Care Medicine (ESICM). This included early experiences and reflections aiming to provide advice to others and reduce anxiety around a largely unknown illness. These forms of online training and education help to share what has been learnt through the pandemic and have allowed healthcare professionals to record their experiences and how they managed the surge, as well as highlighting what some of the main challenges were.

What measures and resources can be put in place to implement rehabilitation earlier in the critical care setting?

Early mobilisation of patients in Intensive Care Units (ICUs) is a complex intervention that requires careful patient management and assessment, along with cross departmental education and co-operation. Firm goalposts need to be set to ensure that all NHS Trusts and healthcare professionals have the same aims and expectations when it comes to early patient mobilisation. There needs to be a standardised way to educate and train staff so that the types of patients who can be mobilised are well-defined and tangible and measurable outcomes can be agreed on. The culture and perception around mobilising a ventilated patient rather than waiting until they have been weaned, needs to be challenged in order to ensure all Trusts are offering the same levels of care and expectations.

Ensuring that there is the appropriate support equipment and guidelines to provide these more advanced levels of care, along with the standardised education and training, will allow early patient mobilisation to be implemented more effectively across the UK. If this can be achieved here in the UK, then there is scope for a worldwide mobilisation network which could help provide practical advice for other countries that need it, in an open and honest forum with patient care at its very heart.

Hillrom would like to thank Dr David McWilliams for his time in participating in the interview and sharing his knowledge and expertise.