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Mike Hansen

*HCA Healthcare*, michael.hansen3@hcahealthcare.com

Eric Jonsvold

Stanley Poole

*HCA Healthcare*, Stanley.Poole@hcahealthcare.com

Mark Steinhauer

*HCA Healthcare*, Mark.Steinhauer@hcahealthcare.com

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# The Successful Rehabilitation of a Complicated MVA Patient: A Case Report



Mike Hansen, PGY-2, MD/MBA<sup>1,3</sup>, Eric Jonsvold<sup>2</sup>, Stanley Poole, DO<sup>3</sup>, Mark Steinhauer, MD<sup>3</sup>

1. Department of Physical Medicine and Rehabilitation/Sunrise Health Graduate Medical Education Consortium, MountainView Medical Center | HCA

2. Touro University Nevada, School of Osteopathic Medicine, Class of 2020

3. Department of Physical Medicine and Rehabilitation, Sunrise Medical Center | HCA

## Introduction

Aggressive early acute inpatient rehabilitation—even interventions beginning while patients are still on ventilators—has shown to be beneficial, with faster recovery and earlier return to function.

As early as the 1980's,<sup>1</sup> publications may be found discussing the many variables, challenges, and victories involved with the use of ventilators in Inpatient Rehabilitation Facilities (IRFs).

Ventilated patients routinely include, but are not limited to, severe pulmonary diseased patients<sup>2</sup> and high tetraplegic patients.<sup>3</sup> However, in certain populations—particularly patients who have endured trauma and suffered alterations in consciousness—ventilators may be employed temporarily as a life-saving measure.

When initiating rehabilitation on such patients, weaning off the ventilator need not have begun. Indeed, earlier rehabilitation is posited to be linked to high FIM scores and better return to function.

## Background

A 66 year-old male presented to the Emergency Department status-post motor vehicle accident with a right frontoparietal subdural hematoma with right-to-left midline shift. He underwent a right craniotomy and hematoma evacuation. Subsequent re-assessment showed significant recurrence of hematoma, which necessitated re-evacuation two days later.

The patient failed extubation due to hospital-acquired pneumonia requiring a tracheostomy and PEG tube. After 14 days in the hospital (including an ICU stay), the patient was transferred to the Rehabilitation Department—while still on the Ventilation/Tracheostomy/PEG combination for comprehensive therapy services.

Comprehensive rehabilitation services were provided, including physical therapy, occupational therapy, speech therapy, nursing, physiatry physician, medicine physician consult, case management, social worker, and pulmonologist physician and respiratory therapist consults in order to assist with ventilator monitoring. Other consultants were required as discussed later.

The patient's family also played a key role in the patient's rehabilitation through emotional support and communication, and were present and participatory during family conferences and family trainings on respiratory techniques, therapeutic exercise, and cognitive conditioning.

## Methods

Initial rehabilitation course was challenging with acute pulmonary embolism requiring a brief return to acute care.

Additionally, the patient suffered pneumonia—hospital acquired, and potentially ventilator-associated as this was before decannulation and shortly after he was weaned from the ventilator—and it was decided that it was safest to get Infectious Disease onboard as a consultant.

Additionally, the patient had an episode of chest pain. No cardiac enzymes were elevated, and no ST changes were evident on EKG, but the patient was found to be in atrial fibrillation with rapid ventricular response. Cardiology was consulted, and this issue was managed and resolved.

Despite these several medical challenges, the patient achieved a steady functional recovery with comprehensive rehabilitation program including 3 or more hours daily of physical, occupational and speech therapy with close monitoring by the respiratory therapist.

Significant improvement in FIM scores was achieved as documented below.

## Results

▫ Total FIM score improvement: 22 to 91.

▫ Average FIM score improvement: 1.4 to 5.7.

▫ His tracheostomy was decannulated and his PEG tube was removed.

▫ At the time of discharge to home, he was either completely independent or modified independent in all ADL's.

▫ Cognitive issues remained a barrier despite aggressive therapy.

|                               | Admit | Discharge |
|-------------------------------|-------|-----------|
| <b>Mobility</b>               |       |           |
| Transfers                     | 1     | 7         |
| Gait                          | 1     | 7         |
| Stairs                        | 0     | 6         |
| <b>ADL</b>                    |       |           |
| Eating                        | 1     | 6         |
| Grooming                      | 1     | 6         |
| Upper Dress                   | 1     | 6         |
| Lower Dress                   | 1     | 6         |
| Bathing/Showering             | 1     | 6         |
| Shower Transfers              | 0     | 6         |
| Toileting                     | 1     | 6         |
| Toilet Transfers              | 1     | 6         |
| <b>Speech &amp; Cognition</b> |       |           |
| Comprehension                 | 3     | 5         |
| Expression                    | 3     | 5         |
| Social Interaction            | 3     | 5         |
| Problem Solving               | 2     | 4         |
| Memory                        | 2     | 4         |

## Discussion

As demonstrated with this patient, it is entirely plausible for patients on ventilators, with tracheostomy tubes, with PEG tubes, or other complex medical problems to participate in the rehabilitation process.

These patients often require a higher level of care, and it is recommended to get specialty physicians onboard sooner rather than later when potential problems arise.

Open communication between therapists, physicians, nurses, and case managers is essential to the successful rehabilitation of these complicated patients. Administration ought to be apprised of their progress, challenges and needs periodically in the process, and appeals for more rehabilitation days—to administration and insurance—ought to be discussed in an ongoing manner.

Return to Acute Care events are more likely in these patients, and where possible, closer monitoring and early consultation of specialists is recommended as indicated.

Walking patients while on the ventilator, while challenging and necessitating more personnel, is encouraged when possible. Patients will likely be limited by fatigue, and there is a balance between encouragement and over-exertion.

## Conclusion

Early and aggressive physical, occupational, and speech therapies improve odds of return to independent function in patients that have had traumatic decline in function. Early Physiatrist consults ought to be considered in all patients who are not functionally at baseline, and ventilators should not be considered an absolute barrier to therapy, though additional personnel and scheduling may be required. An early interdisciplinary approach between therapists, nursing, physicians, case managers, and supportive family members facilitates higher and sooner return to functionality.

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