

Length of Stay & Functional
Outcomes in the ABI
Population-10 year Retrospective
Study

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OBJECTIVES

- Describe factors regarding care in the ABI population
- Identify factors associated with a longer length of stay
- Describe findings regarding correlation between length of stay in a specialized, subacute setting and functional outcomes.
- Compare patient recovery trajectories before and after changes in insurance guidelines.

OUR STUDY

- Retrospective study spanning 10 years from 2005-2015 of a “slow to recover” subgroup of the ABI population
- Purpose: determine correlation between length of stay and functional outcomes
- Setting: Extended Recovery Unit, the subacute brain injury specialized unit at Johnson Rehabilitation Institute at JFK Medical Center

Hypothesis:

- Patients who have acquired brain injury (ABI) presenting with significant medical complexities have a slower rate of recovery and therefore require a longer length of stay.
- With new insurance changes, patients with significant medical complexities are not given the opportunity to maximize benefits of the intensity in acute and subacute rehabilitation.

SUBGROUP OF ABI POPULATION

Exclusion Criteria:

- CVA
- Metastatic brain tumor
- Brain tumors other than “low grade, primary intracranial tumors”
- Coma Recovery Scale <7 or less than 3 point improvement
- Expired
- Unexpected discharge to acute care without return to facility
- Return to facility from acute care with significant decline in function
- Degenerative disorder (ie. Parkinson’s, dementia)
- Less than 3 compromised system involvement

DATA COLLECTED INCLUDES..

- FIM
- Functional status at initial evaluation, re-evaluations, discharge
 - PT, OT, SLP
- CRS-R scores
- Number of days in this setting
- Discharge disposition
- Insurance

IS THERE AN IDEAL LENGTH OF STAY?

Gray et al., 2000:

- ABI population defined as “slow-to-recover” patients
- Severe TBI patients average of 401.1 days post injury
- Mean LOS at a specialized, sub-acute setting was 359.5 days
- Showed statistically significant improvements however progress became slower after a 12 month period
- 85.6% of patients were discharged to community living situations
- These patients are capable of significant functional gains months or years after injury

TREATMENT PLANNING

- Hammond et al, 2015:
 - Increased survival
 - Increased medical acuity/complexity
 - Decreased rehabilitation length of stay
- Sandhaug et al, 2010:
 - Treatment of patients in TBI continues to be highly variable in nature and cost
 - Subacute medical complications are common after severe TBI
 - Can't generalize with traditional standard of care
 - Staff familiar with TBI may be more beneficial than standard treatment of care

LENGTH OF STAY

- Longer length of stay correlated with:
 - Older
 - Further in time from injury
 - Smaller amount of change in functional status
- Factors influencing disposition to home vs institution include:
 - Age
 - If living alone prior to injury
 - Decreased independence with bladder management, transfers and comprehension
- Discharge destination and insurance status are major factors in determining patients' length of stay

(Gardizi et al, 2014)

REHOSPITALIZATION AND TBI

Hammond et al, 2015:

- “Approximately 28% of TBI patients were re-hospitalized within 9-months of TBI rehabilitation discharge due to a wide variety of medical and surgical reasons.”
- The mean time from rehabilitation discharge to first re-hospitalization was 113 days.
- Rehospitalizations due to:
 - Orthopedic or reconstructive
 - Infections
 - Seizures and psychiatric disorders

REHOSPITALIZATION AND TBI

A study by Whyte, et al looked at patients with DOC:

- More than 80% of patients experienced at least 1 medical complication including:
 - Hypertonia, agitation/aggression, UTI, and sleep disturbance
 - Hydrocephalus, pneumonia, gastrointestinal problems, and paroxysmal sympathetic hyperactivity
- Conclusion:
 - High rate of medical complications early after injury.
 - An optimal system of care for DOC patients must provide expert medical management in the early weeks after injury.

KHAN ET AL., 2016

- Many individuals may experience long term disability
- >50% caregivers reported high levels of strain. The caregiving burden was higher in those caring for the more severely affected persons with TBI
- Important to plan out recovery for proper utilization of resources to optimize patient recovery

INSURANCE

- A study by Englum et al, 2016:
 - Nonclinical factors significantly affect health care
 - Analyzed patients included in the National Trauma Data Bank from 2007-2010
 - Hospital LOS and patients with:
 - Private, publicly funded insurance and uninsured
 - Longer LOS with publicly funded compared to private
- A study by Gardizi et al, 2014:
 - “Patients with Medicaid are 68% more likely to be discharged to a SNF rather than rehabilitation compared to patients with commercial insurance”
 - “Patients funded through a HMO are 23% more likely to be discharged to a SNF compared to those with fee-for-service”
 - Increased disability for government-funded insurance compared to private

INSURANCE

- The Balanced Budget Act of 1997
 - Introduced Prospective Payment System to Inpatient Rehabilitation Facilities (IRF) in 2002 (Hoffman et al., 2012)
 - Decreased length of stay for patients
 - “the odds of being discharged to an IRF after a TBI decreased 16% after Medicare’s IRF PPS was enacted” (Hoffman et al., 2012)
- NJ MLTSS
 - Initiated July 1, 2014
 - State Medicaid programs paid long-term care providers on a fee-for-service basis
 - MLTSS: private firms provide managed long-term supports and services
 - Goal: rein in costs, shift from institutional settings to home and community-based care

OUR FINDINGS THUS FAR...

- Research is underway!
- So far noted big difference in average LOS
 - 2001: 149 days
 - 2006: 160 days
 - 2013: 79 days
 - 2015: 70 days
- More people being discharged home with more variety of physical and cognitive abilities vs LTC
- More information to come!

WHAT IS BEST FOR OUR PATIENTS?

- Research shows that although most recovery is made early on, gains can still be made more than a year after injury (Grauwmeijer, 2014)
- Is there an over-utilization of resources? Improper utilization of resources?
- With changing length of stay over the years, where does that leave our patients and their families?

REFERENCES

- Englum, B., Xuan, H., Zogg, C., Chaudhary, M., et al. (2016). Association between insurance status and hospital length of stay following trauma. *The American Surgeon*, 82(3), 281-288.
- Gardizi, E., Hanks, R. A., Millis, S. R., & Figueroa, M. J. (2014). Comorbidity and insurance as predictors of disability after traumatic brain injury. *Archives of physical medicine and rehabilitation*, 95(12), 2396-2401.
- Grauwmeijer, E., Heijenbrok-Kal, M., Ribbers, G. (2014). Health-related quality of life 3 years after moderate to severe traumatic brain injury: a prospective Cohort study. *Archives of Physical Medicine and Rehabilitation*. 95: 1268-76.
- Gray, D. S., & Burnham, R. S. (2000). Preliminary outcome analysis of a long-term rehabilitation program for severe acquired brain injury. *Archives of physical medicine and rehabilitation*, 81(11), 1447-1456.
- Hammond, F., Horn, S., Smout, R., et al. (2015). Rehospitalization During 9 Months After Inpatient Rehabilitation for Traumatic Brain Injury. *Arch of Physical Medicine and Rehabilitation*, 96 (8 Suppl 3): S330-9.
- Hoffman, J. M., Brown, E. D., Chan, L., Dikmen, S., Temkin, N., & Bell, K. R. (2012). Change in inpatient rehabilitation admissions for individuals with traumatic brain injury after implementation of the Medicare inpatient rehabilitation facility prospective payment system. *Archives of physical medicine and rehabilitation*, 93(8), 1305-1312.
- Khan, F., Amatya, B., Judson, R., Chung, P., Truesdale, M., Elmalik, A., & Galea, M. (2016). Factors associated with long-term functional and psychological outcomes in persons with moderate to severe traumatic brain injury. *Journal of Rehabilitation Medicine*, 48(5), 442-448.
- NJ Department of Human Services. (2015, May) FREQUENTLY ASKED QUESTIONS (FAQs) NJ FamilyCare MANAGED LONG TERM SERVICES AND SUPPORTS (MLTSS)
- Sandhaug, M., Andelic, N., Vatne, A., Seiler, S., & Mygland, A. (2010). Functional level during sub-acute rehabilitation after traumatic brain injury: course and predictors of outcome. *Brain Injury*, 24(5), 740-747.
- Whyte, J., Nordenbo, A., Kalmer, K., Merges, B., Bagiella, E., et al. (2013). Medical complications during inpatient rehabilitation among patients with traumatic disorders of consciousness. *Archives of Physical Medicine and Rehabilitation*. 95:2103-10.
- Zorowitz, R. D. (2009). Inpatient rehabilitation facilities under the prospective payment system: lessons learned. *European journal of physical and rehabilitation medicine*, 45(2), 259-263.

Thank you!