Evidence For The Timing Of Rehabilitation Services Following Pediatric Traumatic Brain Injury

Objective

- To develop an Evidence Based Guideline for the initiation of Rehabilitation Services after traumatic brain injury (TBI).

Background

Evidence Based Guidelines:

Clinical practice guidelines:
- Include recommendations to optimize patient care informed by a systematic review of evidence and an assessment of the benefits and harms of alternative care options.
- Offer an evaluation of the quality of the relevant scientific literature and an assessment of the likely benefits and harms of a particular treatment.
- Enable healthcare providers to select the best care for a unique patient based on his or her preferences.

Pediatric Traumatic Brain Injury:
- Each year, pediatric traumatic brain injury (TBI) results in:
  - 2,300 deaths
  - 42,000 hospitalizations
  - 404,000 emergency department visits
  - 17,000 children with permanent disabilities
- Children who survive TBI may benefit from a comprehensive rehabilitation program.
- Delay in initiation of a comprehensive rehabilitation program has been correlated with worse functional outcomes.
- There is wide between-hospital variation in provision of PT or OT for children with TBI.

Methods

A comprehensive literature review was conducted for the PICO question.

“In children with severe TBI (Glasgow Coma Score <8), does early initiation of rehabilitation therapies improve outcomes?”

PubMed and Cochrane were systematically searched from January 1990 - December 2018 resulting in 1,061 titles and abstracts for review.

Results

355 studies pulled for full text review
- 5 pediatric studies found
- All descriptive in nature (show an impact of rehab on functional outcome)
- No comparison population
- The science is not there yet

Challenges with regard to definitively addressing the PICO question:
1. Variability in severity classification
2. Variability in timing of:
   a. Initiation of rehabilitation
   b. Follow-up assessment
3. Variability in age groupings
4. Loss to follow up
5. Influence of intervening variables in the natural environment
6. Access to rehabilitation care including treatment variability during acute care phase
7. Variability in outcome measures
8. Ethical concerns
9. Difficulty translating performance across different standardized tests
10. Measurement of real-world functioning
11. Developmental factors
12. Age of the Rehabilitation discipline

Conclusion

- Evidence does not currently exist for an evidence-based guideline for optimal timing of rehabilitation after TBI in children.
- This mandates support for the development of clinical trials to determine timing of effective interventions.

Related evidence suggests that initiating rehabilitation within 3 days of acquired brain injury is not harmful in children.

Future Directions

- The Emergency Medical Services for Children Innovation and Improvement Center (EIC) Trauma Domain has appointed a task force of subject matter experts to discuss opportunities to move forward. Disciplines include:
  - Physical Therapy
  - Occupational Therapy
  - Psychiatry (Physical Medicine and Rehabilitation)
  - Trauma Nursing
  - Trauma Surgery
- A visual abstract of our consensus designed algorithm (center).
- A recommended metric for children with traumatic brain injury necessitating hospitalization and consultation with rehabilitation services within 48 hours admission.

References


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