Abstract:

Title: Children with severe traumatic (TBI) or non-traumatic (N-TBI) brain injury hospitalized for sub-acute specialized treatment and rehabilitation at Department of Neurorehabilitation, Unit of Traumatic Brain Injury (TBI unit), Rigshospitalet/Hvidovre Hospital, Denmark.

Introduction: In Denmark rehabilitation of patients with severe brain injury consists of three phases: acute phase with neurosurgical treatment; sub-acute phase with intensive hospital rehabilitation; rehabilitation phase provided by the municipality. Advances in intensive care have led to reduction in mortality after severe TBI and N-TBI. As a result 30–40 children need sub-acute rehabilitation each year.

The unit has 4 beds for children and receives patients approximately 28 days after the acute phase. Admission criteria: Patients <5 years old with a Glasgow Coma Scale (GCS) from 3–9; patients ≥5 years old with a GCS from 3–11; patients with a GCS >9 with severe neurological deficits.

Patients daily receive coordinated rehabilitation from an interprofessional team. Weekly meetings with the team and the parents focus on rehabilitation goals. The parents are coworkers receiving information and psychological support. A coordinator from municipality participates in monthly meetings to be prepared for the patient’s discharge. Before discharge the coordinator receives a rehabilitation plan describing the patient’s needs. 1 year post injury the patient and the parents are invited to follow-up at the outpatient clinic.

Data: Demographic and clinical data were registered for patients admitted to the unit and outpatient clinic:

Data from 90 patients from 2005 to 2016 were available; TBI (38%); N-TBI (62%); boys (54%); girls (46%); age range 4 months to 17 years old and 11 months (mean=7 years old and 6 months); length of hospitalization 17 to 284 days (mean=113 days).

Follow-up data were registered on 20% (n=18) of the 90 patients. After discharge some did not respond, others received rehabilitation elsewhere, and two children had died.

At follow-up 22% (n=4) were not in kindergarten/school; 17% (n=3) were in kindergarten/school with special needs; 39% (n=7) were in kindergarten/school at regular terms; 22% (n=4) had not specified activity. The Visual Analog Scale (range from 0 (very low) – 10 (very high) was used to evaluate quality of life. 94% (n=17) answered between 1-10 (mean=7).
Conclusion: Experience and data indicates that rehabilitation of children with TBI and N-TBI is a complex interprofessional challenge:

- Children with severe injuries have long hospitalization.
- Cooperation between the acute/sub-acute phase and municipality is important.
- Cooperating with the parents is important. They take care of the child during and after hospitalization.
- Rehabilitation must continue after discharge as some children at follow-up still need support.
- Follow-up is important as the rehabilitation plan at discharge cannot predict the need for long-team rehabilitation.
- Ongoing individualized rehabilitation affects quality of life.

Future focus is needed on systematic registration of data from hospitalization and follow-up. This may be of value in rehabilitation planning in the different phases. The registration may contribute to a better prediction of intensity and frequency of rehabilitation.