

The postdoc project ***“A prospective study of long-term outcome after traumatic brain injury and health economic assessment of rehabilitation trajectories from early to later phases”*** has been carried out from Spring 2012 to Fall 2014 by Nada Andelic, MD, PhD.

The main objectives were to assess the long-term outcomes, rehabilitation trajectories and health service utilization after moderate-to-severe traumatic brain injury (TBI) and to evaluate the economic impact of rehabilitation trajectories after severe TBI.

Longitudinal outcome data (functional outcomes, health-related quality of life, patients' health care needs, rehabilitation trajectories) were collected in the period May 2005 to May 2012 (6 weeks, 3 months, 1-, 2- and 5 year post injury). 105 survivors (age 16-55 years) after moderate-to-severe TBI were enrolled initially. At 5 years, 11 patients were lost to follow-up leaving 94 individuals in the project.

The project has generated seven international publications with the following key findings:

1. Gaps between self-perceived health care needs and health care services received at the 5-year follow-up were found. Patients with unmet needs were more likely to have less severe TBI-related disability outcome. To ensure the appropriateness of health care service delivery, the cognitive, emotional and vocational problems of these patients should be better targeted.
2. There were a number of significant demographic and injury-related predictors across the 5 years trajectories for employment and health related quality of life. A better understanding of for example how the age of the patient, employment status, type of job prior injury and injury severity influence these domains over the first 5 years after TBI is needed.
3. The trajectory of a continuous chain of rehabilitation was found as a dominant rehabilitation strategy in that it reduces costs and improves functional outcomes after severe TBI in a 5-year perspective. This study provides a unique knowledge about the health effects and cost-effectiveness of integrated rehabilitation services for severe TBI.

With these findings, the project has provided evidence-based knowledge of the long-term consequences and rehabilitation after TBI by combining methods of clinical and health care services research and patient self-reports. The project has also contributed to increased knowledge on statistical modeling of outcomes in longitudinal studies, which has previously lacked in international TBI research, as well as in the development of appropriate research methodology in health economic evaluations of TBI rehabilitation. Due to the nature and topic of this type of research, the project has contributed in maintaining and promoting international and multidisciplinary research collaboration.

Publications:

1. **Andelic N**, Soberg H, Berntsen S, Sigurdardottir S, Roe C. *Self-Perceived Health Care Needs and Delivery of Health Care Services 5 Years After Moderate-to-Severe Traumatic Brain Injury*. PMR 2014;Nov;6(11):1013-21;
2. **Andelic N**, Perrin P, Forslund M, Soberg H, Sigurdardottir S, Sveen U, Jerstad T, Roe C. *Trajectories of physical health-related quality of life in the first 5 years after traumatic brain injury*. J Neurol. 2015 Mar;262(3):523-31.
3. Forslund M, Arango-Lasprilla JC, Roe C, Perrin P, Sigurdardottir S, **Andelic N**. *Multilevel Modeling of Employment Probability Trajectories and Employment Stability at 1, 2, and 5 Years after Traumatic Brain Injury*. Brain Inj. 2014; 28:980-6.
4. **Andelic N**, Ye J, Tornas S, Roe C, Lu J, Bautz-Holter E, Moger T, Sigurdardottir S, Schanke AK, Aas E. *Cost-effectiveness analysis of an early-initiated, continuous chain of rehabilitation after severe traumatic brain injury*. J Neurotrauma 2014; 15; 31:1313-20.
5. Forslund M, Arango-Lasprilla JC, Roe C, Perrin P, **Andelic N**. *Multilevel Modeling of Partnered Relationship Trajectories and Relationship Stability at 1, 2, and 5 Years after Traumatic Brain Injury in Norway*. NeuroRehabilitation. 2014; 34:781-8.
6. Lu J, Roe C, Aas E, Lapane K, Niemeier J, Arango-Lasprilla JC, **Andelic N**. *Traumatic Brain Injury: Methodological Approaches to Estimate Health- and Economic Outcomes*. J Neurotrauma 2013; 30:1925-33.
7. Forslund M, Roe C, Arango-Lasprilla JC, Sigurdardottir S, **Andelic N**. *Association between personal and environmental factors and employment outcome two years after moderate-to-severe traumatic brain injury*. J Rehabil Med 2013;45:801-807