Behavioral problem

There may be two types: neurobehavioral problems, manifesting as inadequate social behavior resulting from prefrontal cortex damage, and affective behavioral problems, resulting from emotional distress as a reaction to a brain injury.

Since these behavioral changes often involve inadequate or inappropriate social-emotional behavior, for example, emotional indifference or hurtful and insulting communication, deficits in social cognition have been put forward by several authors as a possible underlying mechanism [1) 2) 3)].

Regions which fail to undergo expected cortical thinning in the medial aspects of the frontal lobes correlate with difficulties in emotional control and behavioral regulation, common problems for youth with TBI. Examination of post-TBI brain development in children may be critical to identification of children that may be at risk for persistent problems with executive functioning deficits and the development of interventions to address these issues [4)].

Three hundred twenty-three moderate traumatic brain injury to severe traumatic brain injury survivors received 2 to 16 years post-trauma an aftercare survey with seven questions asking for changes in behavior and affect, presented both to patients and their proxies. One hundred eighty-six patients (59%) answered the behavioral questions; 42% had frontal lesions on CT. Ordinal common factor analysis on proxy scores yielded two factors, with behavior and affective items clearly separated and the anger item mediocre related to both factors. Three scales were created: Behavior, Affective and Anger. Frontal patients scored significantly higher on the Behavior and Anger scales. Logistic regression analysis showed a fourfold increase of long-term neurobehavioral problems in patients with frontal lesions. Long-term neurobehavioral problems were significantly correlated to one-year outcome and return to work in the long term.

Patients with moderate to severe TBI neurobehavioral and affective problems can be distinguished. Early CT frontal abnormalities predict long-term neurobehavioral problems, but not affective problems [5)].

Metabolite levels were correlated with some neurobehavioral measures differentially for children with TBI or orthopedic injury (OI). Some neurometabolite levels differed between the TBI and OI groups more than 1 year post-injury and were related to injury severity, as well as some neurobehavioral outcomes following TBI during early childhood [6)].

Measurement

Measurement of behavioral deficits is complicated, because the rating scales used rely on subjective judgement, often lack specificity and many patients provide unrealistically positive reports of their functioning due to impaired self-awareness. Accordingly, it is important to find performance based tests that allow objective and early identification of these problems.

51 moderate to severe TBI patients in the sub-acute and chronic stage were assessed with a test for emotion recognition (FEEST) and a questionnaire for behavioral problems (DEX) with a self and proxy rated version. Patients performed worse on the total score and on the negative emotion subscores of the FEEST than a matched group of 31 healthy controls. Patients also exhibited significantly more

behavioral problems on both the DEX self and proxy rated version, but proxy ratings revealed more severe problems. No significant correlation was found between FEEST scores and DEX self ratings. However, impaired emotion recognition in the patients, and in particular of Sadness and Anger, was significantly correlated with behavioral problems as rated by proxies and with impaired self-awareness. This is the first study to find these associations, strengthening the proposed recognition of social signals as a condition for adequate social functioning. Hence, deficits in emotion recognition can be conceived as markers for behavioral problems and lack of insight in TBI patients. This finding is also of clinical importance since, unlike behavioral problems, emotion recognition can be objectively measured early after injury, allowing for early detection and treatment of these problems [7].

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