Neurocognition, adaptive functioning, and psychopathology in Kleefstra syndrome  

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Objective: The diagnostic yield for rare genetic causes for ID has increased tremendously over the last years. Studies that focus on sub-cohorts with known underlying genetic causes may enable to define more specific profiles that potentially could guide tailor made management. In our present study we aimed to examine if EHMT1 gene defects, which are also known as Kleefstra Syndrome (KS) in human, are associated with specific profiles for adaptive and maladaptive functioning.  

Participants and Methods: In total we studied 58 subjects with ID (28 males, 30 females): 24 with Kleefstra Syndrome and 34 controls. They were examined with the Vineland Adaptive Behavior Scale, mini PAS-ADD interview, Autism Diagnostic Observation Schedule and the Cambridge Neuropsychological Test Automated Battery (CANTAB) to obtain measures of adaptive and maladaptive functioning. This study has an explorative nature and statistical analysis were used to contrast the results (Fisher’s exact test for prevalences, Mann-Whitney tests for subscale scores).  

Results: KS-participants have low levels of adaptive functioning. Autism spectrum disorders are extremely prevalent (about 37%, p=0.001). There are also significantly high prevalences and symptom scores for depressive episodes (41.6%, p=0.043), obsessive compulsive disorders (33.3%, p=0.03) and psychotic symptoms (29.2%, p=0.005). The performance and results at the CANTAB are discussed in line with these. All together this results in a discriminating neuropsychiatric picture in KS patients.  

Conclusions: KS patients are extremely vulnerable to develop neuropsychiatric disorders and should be carefully monitored for this.

Delineation of the cognitive phenotype of KRB syndrome  

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Objective: KRB syndrome is caused by a mutation in the ANKR D11 gene and characterised by a short stature and specific dental, craniofacial and skeletal anomalies. The relatively limited amount of literature on phenotypical presentation, mentions delayed speech and motor development as well as mild to moderate intellectual disabilities. As to psychopathology, autism and ADHD are often described, but yet not substantiated in terms of neurocognitive variables. Aim of the current study was to investigate neurocognitive aspects of KRB syndrome, in particular attentional and social cognitive functioning.  

Participants and Methods: Seventeen patients (aged 6-66 years; ten females) with an ANKR D11 mutation were compared with two different groups of patients with genetic disorders and similar mental ages (n=14 and n=10). Neuropsychological assessment was performed focusing on the level of intellectual functioning and on attention, memory, executive functioning, and social cognition.  

Results: Preliminary results showed mild to moderate intellectual disabilities (T IQ 45-84, M=63.5, SD=10.7). Mean mental age (M=6.4 years, SD=2.6 years) was lower than mean chronological age (M=11 years, SD=5.7 years). When compared to both control groups, results indicated a relatively strong processing speed and social cognitive functioning and a relatively weak performance on the direct recall of auditory memory tasks.  

Conclusions: The cognitive profile of this group of 17 patients with KRB is characterized by mild intellectual disability and diminished sustained attention in verbal tasks that fits the ADHD symptoms described in the scarce literature on KRB. Implications for diagnostic procedures and clinical management the syndrome are discussed.

Toward a Noonan syndrome specific social cognitive training  

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Objective: The neuropsychological profile of patients with Noonan syndrome (NS) is characterised by lowered processing speed and impairments in social cognition (SC). Treatment of SC deficits has proven to be effective in other neuropsychiatric populations. The aim of this study is to perform a systematic review and to incorporate the results in a new, customised intervention protocol for the improvement of SC in patients with NS.

Participants and Methods: Controlled studies on SC interventions for adults with neuropsychiatric disorders, published between 1-1-2003 up to 1-1-2015, were identified through a systematic literature search in PubMed, Web of Knowledge, and PsyCINFO databases.  

Results: From the initial 4,565 hits, 101 full-text articles were assessed for eligibility, and 34 articles were included in the review. Studies predominantly focused on patients with schizophrenia (n=25), acquired brain injury (n=5), and autism (n=4). ‘Simple’ SC processes like emotion recognition were the main intervention targets. Treatment duration and intensity were highly variable (1-56 sessions; 1 week-2 years). Group size ranged from 1 to 12 patients, with an average of 5.  

Conclusions: As patients with NS show deficits in the perception, interpretation, and expression of social-emotional information, a comprehensive approach seems most appropriate to improve SC in this group. Therefore, besides training of emotion recognition and theory of mind stratified, a specific SC treatment for adults with NS should also address problems in the identification and verbalization of (own) emotions. A training protocol comprising the aforementioned elements will be presented.