Abstract

Objectives: Within the last decade there has been growing emphasis on early diagnosis of autism. It has been proved, that early diagnosis of autism followed by an appropriate intensive intervention lead to the reduction of autistic psychopathology and significant improvement of the child's prognosis. Efforts to identify children at risk of autism as early as possible resulted in the development of many screening tools and some new diagnostic methods that could be used even before the age of two years. Despite many attempts of the researchers worldwide, we still lack general agreement on the optimal screening method. Abnormal sensory symptoms have a specific position among the early signs of autism. Difficulties with sensory processing have been associated with autism since it was first defined as a diagnosis; nevertheless evaluation of sensory symptoms is under-represented in autism screening tools. There has been a long lasting debate whether sensory symptoms are a component of core autistic deficits or a co-morbid phenomenon, however, new version of the Diagnostic and Statistical Manual of Mental Disorders (DSM-5) has already included sensory dysfunction among the diagnostic criteria of Autism Spectrum Disorder.

Methods: Over 90% of children with autism have sensory abnormalities and present with sensory symptoms in multiple sensory domains. The development of parent-caregiver-administered, standardized norm-referenced sensory questionnaires has allowed quantification of these behaviors relative to age norms. Findings from standardized questionnaires show that 45 – 95% of individuals with Autism Spectrum Disorders (ASD) demonstrate high frequencies of sensory behaviors that are more than 1 standard deviation (SD) away from norms. One of the best tools to evaluate sensory symptoms in young children up to the age of 3 years is the Infant/Toddler Sensory Profile (ITSP). The objective of this study was to explore the potential of the Infant/Toddler Sensory Profile (ITSP) as a screening tool for autism spectrum disorders (ASD) in prematurely born children. These children are at an

increased risk for ASD (3,65% – 12,9%) compared to general population (1%). Parents of 157 children with birth weights less than 1500g (age 2 years, corrected for prematurity; 88 boys, 69 girls) completed a screening battery that besides the ITSP included two broadband screens - Modified Checklist for Autism in Toddlers (M-CHAT), and the Communication and Symbolic Behavior Scales Developmental Profile Infant-Toddler Checklist (CSBS-DP-ITC). All children who screened positive on any of the screening tools subsequently underwent clinical examination including the Autism Diagnostic Observation Schedule-Generic (ADOS-G).

Results: The results of our study do not confirm that abnormal performance in the ITSP could itself identify the cases of ASD in the population of preterm children. We used classification trees to answer the question whether ITSP (or some of its subscales) could be combined with the M-CHAT and/or the CSBS-DP-ITC into an effective ASD screening tool. Using the CSBS-DP-ITC overall score and the sensation seeking subscale of the ITSP, we obtained a screening tool that was able to identify all of the ASD children in our sample (confirmed by cross-validation). The proposed screening tool is scored as follows: (1) If the overall CSBS-DP-ITC value is less than 45,5 then the screening is *positive*; (2) If the overall CSBS-DP-ITC value is greater than or equal to 45,5 and the z-score of the Sensation Seeking subscale of ITSP is greater than or equal to 1,54 the screening is *positive*; (3) Otherwise the screening is *negative*.

Conclusions: The identification of abnormal sensory symptoms is an important part of the diagnostic process in ASD. The use of Sensation Seeking subscale of the ITSP in combination with the CSBS-DP-ITC improves the accuracy of autism screening in preterm children and eliminates the number of false negative screening results. Our results may contribute to the development of more effective screening tools and consequently to the improvement of the early diagnosis of Autism Spectrum Disorders.