

Abstract

Introduction: Developmental dysphasia (DD) is a developmental language disorder with high prevalence, but also with low publication index and confusion of the terminology (including the Czech version of ICD - „speech“ disorder instead of „language“ disorder). The scientific view has passed the development from a symptom, through the specific nosologic unit to the current term Developmental language disorder (DLD) and its classification among a new category of diseases in ICD-11 (existing in DSM-5) called Neurodevelopmental disorders. Another disorder with the characteristic pathology in communication is the autism spectrum disorder (ASD) which is classified as a disease of the same category as DD. Compared to DD, it has a higher publication index, lower prevalence, and even more serious consequences. Three different domains that cause confusion, both in ASD and DD, are "speech", "language", and "communication". The same confusion applies to the current subtypes in ICD-11 with the term "functional language". In the Czech Republic there are very few studies dealing with the patients with DD, their profile of a clinic picture has not been processed so far. In spite of the increase of Czech research of ASD there is a missing speech, language, and communication profile of these individuals. This has been a subject of a long-term and so far unfinished discussion in the world of science. The aim of our study was to describe the clinic picture of the children with DD, i.e. to create the speech, language, and communication profile, to apply analogical procedures among children with ASD and to find the mutual relationship between the diagnoses by comparing those profiles.

Methods: Our cohort was comprised of 36 children with DD (24 boys and 12 girls, mean age 8.92 ± 2.20 years), who were compared with 34 healthy control subjects (16 boys and 18 girls, mean age 8.95 ± 1.52 years) and with 37 children with ASD (33 boys and 4 children, mean age 8.10 ± 2.44 years). The study proceeds from the multidisciplinary project that compared the probands using neuroimaging (magnetic resonance imaging DTI). Excluded were the children with intellectual disorder and other serious psychiatric or neurological diseases. The group of autistic children was diagnosed using ADOS and ADI-R, the "gold standard" in diagnosing ASD. Due to the lack of Czech standardized tests in the field of language and communication domains, we used the partially verified battery composed of available sources: Token test, Heidelberg test of speech development, NEPSY-II, Comprehensive language assessment, Addenbrooke's Cognitive Examination, phonological loop test, test of grammatical impairment, etc. These were tested: receptive and expressive phonology, morphosyntax and lexicon,

semantics, phonetics, word recalling, verbal memory, reading comprehension, discourse and pragmatics; in total 34 items. In order to minimize the impact of structural language on communication, we adapted the measured level of receptive morphosyntax, semantics, and phonological loop when testing pragmatics.

Results: In the domain of speech, a disorder of the articulation of phonological and motor etiology was demonstrated in children of both disorders. We discovered that the most serious subtype of articulation disorder, verbal dyspraxia, affects 75% of children with DD and 39% of children with ADS in the age of our probands. The results from the language domain showed significant differences between the children with DD and the healthy controls in all specified areas and they approximated the groups of disorders. The ASD group was clearly divided into two subgroups: the larger group (70 %) with language impairment and the smaller group (30 %) without language impairment. In the communication domain it was shown that the children with dysphasia are not much different from neurotypical ones, but they are different from autistic children. In the discourse (on the border between language and communication) there was a significant difference between DD and controls, and the similarity between disorders: but only in its fluency, not in coherence. Similarity in fluency was probably influenced by comorbid ADHD with its subtypes equally in both disorders. But from the coherence and information value point of view the discourse brought about the similarity of dysphatics with neurotypics and displayed significant dissimilarity from the autistic. Although the ADS group compared to the DD group had a higher score in all items of the communication domain, except the agreement in logorrhea, significant difference appeared only in echolalia, facial and gesture expressions and expressive prosody. In the subtest, which tested the connection between structural and pragmatic language (matching statements with the emotional implicit meaning to faces with emotional expression) without the possibility of adjusting to the level of structural language, children with DD approached children with ASD more than the healthy controls (support in the form of receptive prosody did not help children with DD).

Conclusion: In this study, six null hypotheses were tested with the following results: 1. "Dysphatic children do not differ in speech from healthy children" was rejected, because a substantially higher incidence of speech sound disorders was found among dysphatic children. 2. „Dysphatic children do not differ from healthy children in language“, was rejected due to a substantially worse language score. 3. „Dysphatic children do not differ from healthy children in communication“ was not rejected because dysphatic children showed certain similarities

with healthy controls. 4. „Dysphatic children do not differ from autistic children in speech“ was rejected, we proved statistically significant difference in higher incidence of serious speech sound disorders among children with DD. 5. „Dysphatic children do not differ from autistic children in language,, was rejected, because two subgroups were identified in the ASD group: one with language impairment and the other without language impairment. 6. Dysphatic children do not differ from autistic children in communication“ was rejected for a significant difference in basic items tested.