

Editorial

Autism Spectrum Disorders and Language

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Abbreviations

ASD: Autism Spectrum Disorders; DSM-V: Diagnostic and Statistical Manual of Mental Disorders; SPCD: Social (Pragmatic) Communication Disorder

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Recently autism and related disorders are re conceptualized with some substantial changes. Autism, Asperger disorder, childhood disintegrative disorder and pervasive developmental disorder not otherwise specified, are entailed under the name of Autism Spectrum Disorders (ASD) in the American Psychiatric Association's Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition (DSM-5) [1]. Hence ASDs are defined as a single disorder characterized by different levels of severity in the 2 core symptom areas. These included impairments in social communication and social interaction and restricted, repetitive patterns of behavior, interests, or activities both of which are required for a diagnosis of ASD. The various sensory abnormalities, such as hyper- or hyporeactivity to sensory input or unusual interests in sensory aspects of the environment emphasized consistently in the autobiographies of autistic writers [2], are also included. The heterogeneity of clinical picture in ASD is determined according to the levels of intellectual impairment and/or language impairment [3]. Nonetheless the level of intelligence and language has some correlation although higher levels of nonverbal IQ are not always associated with higher level language skills [4].

According to the current DSM-5 criteria, individuals previously diagnosed with Asperger syndrome (which also displayed a large clinical variability) would be diagnosed as having ASD without language or intellectual impairment (also known as high-functioning autistics). However DSM-5 introduced a new diagnostic category, that is, Social (Pragmatic) Communication Disorder (SPCD), characterized by persistent difficulties using verbal and nonverbal communication for social purposes, in the absence of restricted and repetitive interests and behaviors'. This has shown there are impairments of social communication occurring outside of an autism diagnosis [5]. It may be that some children formerly reported to have Asperger syndrome should be now properly diagnosed having SPCD as they also did not display core sociability problems characteristic of ASDs. In a recent study greater degrees of peer interaction difficulties, restricted and repetitive behaviours/interests and expressive language problems discriminated high-functioning autism from pragmatic language impairment (roughly equivalent to SPCD) [6]. According to a twin study of the concurrent association between autistic traits

and receptive language abilities, it was found that language and autistic traits are influenced by largely distinct etiological factors [7]. Abnormal function and structure of fronto-temporal and limbic networks are associated with social and pragmatic language deficits, and of temporo-parieto-occipital networks with syntactic-semantic language deficits [8]. All these findings lent support to DSM-5 changes to ASD diagnostic criteria that see language difficulties separated from the core communication symptoms.

Language impairments in autism are more extensive than commonly assumed and described by formal diagnostic criteria. As the prognosis in ASD largely depends on the development of a useful language, the language problems deserve attention. Individuals belonging to ASD have always varying degrees of abnormalities in various aspects of language, ranging from semantic-pragmatic deficits to the absence of speech [9]. While a good command of at least formal language is sufficient to have some functioning in the society, it alone hardly helps overcome the core features of autism related to sociability and social communication. As a matter of fact, deficits in pragmatic (and also usually semantic) aspects of communication, specifically the ability to use both literal and non literal language appropriately in a range of social contexts, are almost invariable symptoms even among adults with Asperger syndrome, although structural language deficits (phonological problems, grammar deficits etc.) are not always present in patients with ASD [10]. Individuals with Asperger syndrome who have normal, or even superior intelligence may have good verbal skills with good formal language, they invariably display linguistic communication problems including semantic and /or pragmatic abnormalities, pedantic speech and abnormal prosody in addition to impairment of the nonverbal communication.

In order to facilitate finding the underlying causes and to develop effective treatments that will alleviate the severe and debilitating consequences of autism, including language disability, the study group must be constrained so as to include homogeneous group of patients with a clearly defined phenotype [11]. One of the methods available for narrowing down the phenotype of autism involves identifying subtypes within autism [12]. Although it may not be totally satisfactory, the classification of Rapin and Allen still seems to be theoretically and clinically the most useful approach to subtype language problems of children with ASDs [13,14,15]. This classification included three major categories each of which had two subcategories. Receptive/expressive developmental language disorder included phonologic/syntactic deficit syndrome characterized with grammar problems; and verbal auditory agnosia in which the child appeared unable to make sense of speech sounds. Expressive developmental language disorder syndromes included developmental verbal dyspraxia, extremely limited with impaired production of speech sounds and short utterances; and phonologic programming deficit syndrome characterized by poorly intelligible utterances. Higher order processing disorders included lexical deficit disorder with word finding problems and difficulty putting ideas into words; and pragmatic language impairment.

Furthermore recent studies indicate there is differential involvement of neural circuits corresponding clearly separate types of language problems [16, 17]. Different language abnormalities in autism may stem from the involvement of different neural circuits. The brain circuitry implements a hierarchical system for language and communication that spans from basic pre-linguistic social abilities to syntactic and pragmatic functions [18]. Early sensory impairments and subsequent atypical neural connectivity are likely to play a part in abnormal language acquisition in autism [19]. Abnormal processing of low-level linguistic information (aberrant perception, especially in the auditory domain, with both hypo- and hypersensitive features) give rise to problems in the development of higher aspects of language development [20]. Abnormal high-level linguistic processing of the frontal and temporal language association cortices indicates more self-reliant and less connected neural subsystems [19].

Obviously until a radical neurobiological cure or treatment is offered by the neuroscience, language therapy targeted at the semantic pragmatic aspects of language should be started at an earlier age; a greater number of speech language pathologists specialized in that field should be recruited to concentrate on semantic and pragmatic aspects of language problems. In addition there should be a coordinated study between teams that integrate the work language pathologists with other professionals (such as psychodrama, psychotherapy etc.) who targeted at the alleviation of sociability to increase the effectiveness of therapies.

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