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Mental development and autistic behavior in children with pervasive developmental disorders

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ABSTRACT

The aim of this study was to clarify the features of mental development and autistic behavior in children with pervasive developmental disorders (PDD) from the viewpoint of remedial therapy. The Tokyo Child Development Schedule (TCDS) and the Tokyo Autistic Behavior Scale (TABS), designed to be completed by children's caregivers, were used. A comparison was made of 36 children with PDD, 36 children with AD/HD, and 36 children with other diagnoses (OTHERS), who were matched about IQ and age. Although there were no significant differences between the three groups in terms of their overall scores on the TCDS and TABS, there were significant differences in specific areas on the tests. On the TCDS, the PDD group scored significantly lower than the AH/HD group and OTHERS group in Area V (Socialization). The PDD group also scored significantly lower than the AD/HD group in Area VII (Comprehension/Cognition). On the TABS, the PDD group had significantly higher scores than the AH/HD group in Area 2 (Language-Communication) and Area 3 (Habits-Mannerisms), and displayed significantly more autistic behavior. These findings suggest that children with PDD not only suffer from impairments in "qualitative impairment in social interaction" and "adapting to change," but also have underdeveloped use of pointing, and impairments in "joint visual attention," conceptualizing spatial relationships and language functions. They also suggest that in addition to general evaluations of development and autistic behavior, remedial therapies need to include more detailed assessments of children with PDD.

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1. Introduction

Pervasive developmental disorders (PDD) are autistic developmental disorders in the broad sense. According to the Diagnostic and Statistical Manual of Mental Disorders fourth edition (DSM-IV) (American Psychiatric Association [APA], 1994), PDD are severe and pervasive impairments in several areas such as mutual social relationships and communicational ability, and are characterized by restricted, repetitive or stereotyped patterns of behaviors and interests. As in infantile autism (childhood autism) or autistic disorder (autism), which is the core category of PDD, PDDs overall are male predominant, with male-to-female ratios of 4–3 to 1 (an exception is Rett's disorder or syndrome, which occurs only in females). The prevalence of PDD is about three of 1000 children in the general population (Gillberg, 1984; Wing & Gould, 1979). PDD is diagnosed in children who clearly show the above-mentioned features in infancy: i.e., (1) lack of interest in people and relationships, (2) impaired development in communicational ability including language, and (3) existence of restricted, repetitive or stereotyped patterns of behavior and interest. Furthermore, diagnosis of PDD subtypes requires

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diagnoses according to each diagnostic standard. The International Classification of Diseases, 10th revision (ICD-10) (World Health Organization [WHO], 1993) adopted a PDD concept and subtypes similar to those of DSM-IV, but included more categories.

Notwithstanding the many studies on PDD (Forstein & Rutter, 1977; Minshew, 1991; Ritvo, Freeman, Mason-Brothers, Mo, & Ritvo, 1985), its cause remains unknown, and at present there is neither a cure nor established medical treatment for children with PDD. Because there is no medical cure or established treatment, the main curative method for children with PDD is nurturing and educational remedial therapy. About 70–80% of children with PDD have mental retardation, and the remedial therapy for children with PDD, that is, children with autistic features, is more difficult and needs more special considerations than that for children with mental retardation only. Remedial therapies for children with PDD include behavioral therapy, intervention which aims at improvement in cognition and social function (Ghuman et al., 1998), day care, and intervention to mainly fosterers (Jocelyn et al., 1998). The effect of each of these approaches has been suggested by research. Furthermore, interventions for autistic disorder or severe impairments in PDD that are made when the child is at a very young age (2–4 years old) can provide greater benefit (Krug, Arick, & Almond, 1980; Kurita, Miyake, & Katsuno, 1989). These effects are from the viewpoint of improvements in communicational, behavioral, emotional, and cognitive impairments, and the importance of the remedial therapy from an early age is widely recognized (Gresham & MacMillion, 1998; Mars, Mauk, & Dowick, 1998; Osterling & Dawson, 1994; Rogers, 1996; Vig & Jedrysek, 1999).

Although many scales have been developed in order to assess PDD, they focus mainly on evaluation of the degree of autism in children with PDD, and do not assess children from the viewpoint of development. It is important to understand the development of a child in detail from infancy, not only to acquire fundamental information for remedial therapy, but also to understand aberrations in development which may relate to diagnosis. Although studies using the Vineland Adaptive Behavior Scales have identified features of children with autism (Carter et al., 1998; Perry & Factor, 1989), this scale evaluates adaptive children's behaviors but not their development. Moreover, there are many scales that are completed by specialists, but fewer reported scales that are completed by a child's mother or main caregiver (Osada et al., 2000). The New Kyoto Developmental Scale gives a broad evaluation of children's development, but it is completed by experienced psychologists. Taking into consideration that it is not always easy for specialists to evaluate PDD children, information based on a scale that is completed by a caregiver would seem meaningful. In Japan, the Infant Behavior Checklist (IBC) (Takesada et al., 1990), which was developed by the Child Behavior Evaluation Society (the representation; Hiroshi Naruse), mainly inquires about a child's behavior before 3 years of age and is filled in by the child's mother. Studies using the Infant Behavior Checklist (Takesada et al., 1990; Yamasaki et al., 1988) compared normal and autistic children, including school age children, and reported the appearance ratio of problem behaviors in autistic children at an early stage. Osada et al. (2000) examined the usefulness of IBC as a screening measure of a pervasive developmental disorder. Other scales completed by the mother are the Tokyo Child Development Schedule (TCDS), which evaluates development, and the Tokyo Autistic Behavior Scale (TABS), which evaluates autistic behaviors. Osada et al. (2002) examined TCDS for usefulness as a diagnostic auxiliary measure of PDD, and Tachimori et al. (2000) examined TABS with children with PDD and children with mental retardation. However, TCDS and TABS have not been examined from the viewpoint of remedial therapy. As mentioned above, although the importance of understanding a PDD child's features is recognized, no tests have been established for the features of 's development and autistic behaviors in PDD children as evaluated by caregivers, from the viewpoint of remedial therapy.

Attention-Deficit/Hyperactivity Disorder (AD/HD) is reported to have a prevalence of 3–7% in schoolboys in the U.S., one of the highest prevalence disorders in child psychiatry.

In AD/HD, problems related to personal relationships and other aspects of sociality exist in addition to the main condition of hyperactivity, impulsiveness, and attention-deficit. Clark et al. (1999) reported that 65–80% of AD/HD child's parents admitted the AD/HD child had problems related to sociality or communication using a measure on which parents rate autistic symptoms. Stein et al. (1995) compared social maturity in AD/HD and PDD children, and reported that although PDD were immature socially, when differences in IQ were taken into consideration, AD/HD children were also relatively immature socially.

Children with PDD often have attention-deficit or hyperactivity. Nevertheless, according to DSM-IV or ICD-10, if a child is diagnosed as PDD, he/she is not diagnosed as AD/HD, although both have clinical similarities. Therefore high-functioning PDD (PDD without mental retardation; that is, with an IQ of 70 or above in a wide sense, or with an IQ of 85 or more, i.e., a normal range IQ, in a narrow sense) children have fewer problems in personal-relationships than PDD children with mental retardation, and do not have problems in language expression. Therefore, confusion between PDD and AD/HD could occur. Buitelaar, van der Wees, Swaab-Barneveld, and Jan Van Der Gaag (1999) test Theory of mind and examined the test of emotion-cognition with age and the verbal IQ controlled, reported no significant differences among autism, PDD Not Otherwise Specified (PDDNOS) and AD/HD. As mentioned above, similarities are seen between PDD and AD/HD.

As mentioned above, many children with PDD have mental retardation. To understand the autistic behaviors, cognition, and development of children with PDD, they are often compared with children with mental retardation. To understand the features of PDD more clearly, comparisons with children with mental retardation child who do not have PDD are effective. However, considering the prevalence rate of PDD and AD/HD and their similarities, it is meaningful to understand the features of PDD among 3 groups: children PDD, AD/HD, and other disorders including mental retardation.

This study attempted to clarify the features of PDD using the Tokyo child development schedule (TCDS) to evaluate children's overall development and the Tokyo autistic behavior scale (TABS) to evaluate autistic behaviors, (both of which are

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