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Anxiety and Anxiety Disorders Associated with Neurodevelopmental Disorders

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Abstract

Individuals with neurodevelopmental disorders inevitably have anxiety in social settings, often resulting in disturbed psychological development at each life stage. Neurodevelopmental disorders are frequently associated with anxiety disorders. Based on diagnostic criteria, however, social anxiety disorders and selective mutism should be differentially diagnosed from neurodevelopmental disorders. Previous studies suggested that autism spectrum traits are risk factors for social anxiety and selective mutism, but that fewer autism spectrum symptoms are associated with these anxiety disorders. Therefore, social anxiety disorders and selective mutism are suggested to be associated with anxiety and tension in social or speaking settings in individuals with autism spectrum disorders.

Keywords: neurodevelopmental disorders, secondary comorbid disorders, social anxiety disorders, selective mutism

Introduction.

Neurodevelopmental disorders are a wide variety of cognitive and behavioral impairments that are detected in early childhood, that interfere with daily life, and their diagnosis do not require the presence of anxiety. However, neurodevelopmental disorders are associated with a variety of anxiety disorders and stumbling blocks in developmental tasks due to their cognitive and behavioral characteristics. Neurodevelopmental disorders are known to have a high rate of comorbidity with psychiatric disorders, some of which may be considered so-called secondary disorders. However, the relationship between neurodevelopmental disorders and comorbid anxiety has not been fully investigated. In this paper, we will discuss anxiety associated with neurodevelopmental disorders and anxiety as a phenotype based on neurodevelopmental disorders.

I. Neurodevelopmental disorders and anxiety in development

1. Anxiety associated with autism spectrum disorder

The cognitive characteristics of autism spectrum disorder are associated with a variety of anxiety disorders. Autism spectrum disorder makes it difficult to recognize other people's gazes and facial expressions, and the intentions or feelings behind other people's words and actions. This also affects the patient's ability to establish relationships with significant others. Infants with autism spectrum disorder have difficulty expressing their needs to their caregivers even when they are uncomfortable, such as being hungry, hot, cold, or having a wet diaper, and therefore have difficulty eliciting care from their caregivers. Even when caregivers provide care, it is difficult for patients to understand the caregiving behavior in the context of the caregivers' thoughts and their own relationships. In addition, the fulfillment or nonfulfillment of needs is recognized in relation to time and place rather than in relation to the caregiver, and there are difficulties in establishing and integrating object relations. This makes it difficult to establish a basic sense of trust that one's needs will be met appropriately. In the case of infants with autism spectrum disorder, it is easier for them to feel secure when their presence is confirmed by sensory aspects such as touch and smell than to feel secure under the gaze of their caregivers or in their relationships with their caregivers. Separation in infancy is also achieved based on a sense of security under the gaze of the parent while using the parent as a secure base, or a sense of security that the parent is thinking about them even when they are far away. However, with autism

spectrum disorder, anxiety increases when the child is physically separated from the parent, and they tend to demonstrate one of two extremes: either extreme separation anxiety or no anxiety at all about separation from the parent. In infancy and school-age children, anxiety tends to increase due to an inability to properly understand social events that occur around them. They also tend to perceive their surroundings as threatening and to be biased toward victimization. In addition, even though interpersonal desirability increases as children grow up, it is not uncommon for children to be unable to understand friendships made by those whom they consider to be their friends.

In children with autism spectrum disorder, anxiety is often observed even in relation to their physical development. Children with autism spectrum disorder have poor self-referential behaviors, poorly developed body schematics, awkward movements, and frequent injuries. Self-stimulation behaviors, including homophobia and masturbation, are thought to be based on a compulsive need for sensory stimulation. In response to mirror images, children often find themselves in their mother's arms in the mirror, look back at their mother and smile, and then, instead of identifying with the self-image in the mirror, jump up and down and repeat the behavior, happy to see their own image disappear and reappear in the mirror. When asked to draw portraits, they are often poor for their intellectual level, obsessed with details, and often show confusion when filling in facial expressions and body parts. In general, the body image of children with autism spectrum disorder is elemental and weakly integrated. In addition, when secondary sexual characteristics are reached, physical changes and the challenge of establishing identity come into play, and when traumatic experiences related to heterosexual relationships are added, a crisis may occur.

2. Anxiety associated with attention deficit/hyperactivity disorder

Children with attention deficit/hyperactivity disorder (ADHD) tend to have difficulties with schoolwork and peer relationships due to restlessness, impulsivity, difficulty in planning activities, and inattention. In elementary school, group discipline is required not only in class, but also during lunch, cleaning, and related duty activities. Students are also expected to write neatly in notebooks, do their homework at home, and turn in their work. As the grades increase and more complex skills are required, difficulties in learning and poor planning will directly affect their grades. They are also more likely to react impulsively to

teasing from friends, which can lead to trouble. This can lead to feelings of inferiority and damage their self-esteem.

Difficulties in daily life can be observed not only at school, but also at home. In Japan, where a significant portion of learning, such as homework, is left to the family, difficulties at school can easily lead to conflicts at home. In addition, caregivers are troubled by the patient's inability to switch behaviors and to cut back on games and smartphones. Children with ADHDmay react emotionally or behave impulsively without knowing when to keep calm, resulting in anxiety that they will be punished by their caregivers. Additionally, when caregivers become more attentive to the child's face, the child may feel guilty about the loss of the traditional caregiver image. In many cases, the caregiver's support lasts until adolescence, and the child's self-esteem often remains low due to the reluctance of the caregiver to intervene and the reality that he or she cannot do without it.

II. Relationship between neurodevelopmental disorders and anxiety disorders: position based on operational criteria

As we have seen, neurodevelopmental traits are related to developmental issues in life stages, such as the acquisition of basic trust, establishment of object relations, separation from caregivers, acquisition of self-esteem, and acquisition of identity. In addition, patients tend to feel threatened by society and to perceive the actions of others as victimizing. In an attempt to escape anxiety, they may demand strong assurances and take a defensive and sometimes aggressive stance. Conversely, they may adopt an avoidant behavioral style to avoid being hurt. The presence of neurodevelopmental disorders can be associated with comorbid anxiety and anxiety-based behavioral changes. In fact, neurodevelopmental disorders are frequently comorbid with psychiatric disorders such as mood disorders and anxiety, some of which may be secondary disorders, but the relationship between them has not been fully investigated.

In autism spectrum disorders, there are impairments in interactions in interpersonal situations and communication, but social anxiety and selective silence are the most important to consider in relation to anxiety. For this reason, this paper will focus on social anxiety and selective mutism.

The operative diagnostic criteria emphasize the need for differentiation of these traits rather than focusing on the relationship between the two. For example, in the DSM-5[1], social anxiety disorder is characterized by significant

fear, anxiety, or avoidance of social situations in which one may be watched by others, as well as fear of being evaluated negatively for behavior or anxiety symptoms. The differential diagnosis of autism spectrum disorder is characterized by social anxiety and a lack of social communication.

In addition, selective gagging is characterized by the inability to speak in certain social situations, even though one speaks in other situations, that is not due to a lack of knowledge of the spoken language or enjoyment of speaking. However, it is an exclusionary requirement that the inability to speak in certain situations is not well explained by communication disorders and does not occur only in the course of autism spectrum disorders, schizophrenia, etc. As a differential diagnosis, it mentions that, unlike autism spectrum disorder, patients are able to establish conversations in certain social situations.

Both social anxiety and selective gagging are treated as a differential diagnosis from autism spectrum disorder, with the difference being that autism spectrum disorder is characterized by a lack of social communication and the inability to establish conversations in all social situations. However, these clinical characteristics apply only to a subset of patients with classical autism who are non-verbal. Nowadays, the diagnosis and support of autism spectrum disorder are expanding to include patients with mild intellectual disability and other mild characteristics. Given the situation in which patients with autism spectrum disorder who do not necessarily present with clinical symptoms, such as the inability to acquire gaze, a lack of interpersonal desire, indifference to the evaluation of others due to inability to visualize the content of others' thoughts, and a lack of spoken language, have become a diagnostic challenge, and the social adaptation and psychiatric symptoms of those in the so-called "gray zone" of the diagnostic threshold level have become a problem, the descriptions in DSM-5 do not seem to adequately describe the relationship between neurodevelopmental disorders and anxiety disorders.

III. Relationship between neurodevelopmental characteristics and anxiety symptoms that characterize anxiety disorders

As mentioned above, it is difficult to examine the relationship between neurodevelopmental disorders and anxiety disorders based on a categorical diagnosis using operative diagnostic criteria, because they are regarded as exclusionary diagnoses to begin with. Therefore, we would like to clarify the

relationship between neurodevelopmental characteristics and anxiety symptoms that characterize anxiety based on previous studies.

1. Autism spectrumcharacteristics and social anxiety

It has been reported that children with social anxiety and selective mutism have higher scores on the Interpersonal Reactivity Scale than children with normal development [3]. Additionally, there have been several reports examining social anxiety in children with autism spectrum disorder. The Social Anxiety Scale for Children-Revised (SASC-R) was used to assess the social anxiety of 144 children with autism spectrum disorder and 135 children with normal development who were 8-16 years old and fluent in speech. The results showed that children with autism spectrum disorder had higher levels of social anxiety in both the individual and parent ratings than children with typical development [2]. However, in children with autism spectrum disorder, the strength of social anxiety was significantly higher than the strength of communication disorder as assessed by the Social Communication Questionnaire (SCQ). Additionally, the strength of social anxiety was inversely correlated with the strength of communication impairment, as assessed by the Social Communication Questionnaire (SCQ), and the strength of adaptive skills, as assessed by the Behavior Assessment System for Children-Parent Rating Scale (BASC-PRS). This suggests that, although autism spectrum disorder characteristics are associated with social anxiety, autism spectrum disorder characteristics themselves do not cause social anxiety, but rather social anxiety may be brought about as a secondary disorder when autism spectrum disorder is mild.

Some studies have examined whether autism spectrum disorder characteristics are risk factors for social anxiety using path analysis 8). We assessed communication disorders and social anxiety in 9,491 children at ages 7, 10, and 13. The results showed that communication disorder at age 7 predicted communication disorder at age 10, communication disorder at age 10 predicted communication disorder at age 13, social anxiety at age 7 predicted social anxiety at age 10, and social anxiety at age 10 predicted social anxiety at age 13. Communication disorder at age 7 predicted social anxiety at age 10, and communication disorder at age 10 predicted social anxiety at age 13. This supports the hypothesis that social anxiety arises as a secondary disorder of autism spectrum disorder.

Mild autism spectrum disorder traits

can cause anxiety, confusion, and nervousness due to the inability to palpably read social information, such as facial expressions, gazes, and gestures, or to understand social contexts. For people with autism spectrum disorder, such situations are often associated with negative past experiences, eliciting almost fearful emotions, and people with autism spectrum disorder lack the social skills to handle such situations. This may lead to social anxiety, as they develop a style of avoiding social situations that may cause anxiety and fear.

2. Autism spectrum characteristics and selective mutism

Selective mutism is a selective behavioral variant for a specific social situation, rather than a specific place or person, and presupposes the ability to read a specific social situation. This is a critical difference from traumatic memories in children with autism spectrum disorder, which are more likely to be associated with places and people than with situations. For this reason, it is thought that children with classic autism, who have significant difficulties in reading social situations, are less likely to have selective gagging as a secondary disorder.

In recent years, a pathological model has been proposed that suggests that anxiety underlies selective silence and that neurodevelopmental disorders, in addition to genetic, temperamental, and environmental factors, are involved in the etiology of selective silence [7]. It has been reported that 68.5% of children with selective mutism have a diagnosis of a neurodevelopmental disorder, of which 8% have mild intellectual disability and 7% have autism spectrum disorder [5]. It has also been reported that there is a pattern of impairment in fine language skills, such as language delays [4] and poor vocabulary comprehension, auditory perception, and grammar [6].

When communication difficulties associated with fine language delays are combined with difficulties in understanding the interpersonal context associated with autism spectrum disorder, the tension associated with speech becomes aggravated. In particular, when the other person's reaction is unpredictable, or when the child has experienced communication difficulties in the past, overtension is likely to occur. In children with autism spectrum disorder, the range of skills to cope with such overstrain is limited, and it is thought that the re-experiencing of the gap between the response and the surrounding environment may add to the trauma and fix the situation-dependent lack of speech.

Conclusion.

Although anxiety is not a prerequisite for the diagnosis of neurodevelopmental disorders, it is an inevitable consequence of their nature and is closely related to difficulties in the developmental process. It has been reported that anxiety is highly comorbid in neurodevelopmental disorders. However, autism spectrum disorders have been excluded from the diagnostic criteria for social anxiety and selective gagging. A review of previous studies shows that autism spectrum disorder is a risk factor for these anxiety disorders, but the severity of symptoms is negatively correlated with autism spectrum disorder characteristics, including tension in social and speech situations. This may have implications for intervention when social anxiety and selective gagging appear as secondary disorders of autism spectrum disorder.

Conflict of Interests

Lecture fees, etc.: Shionogi Inc. and Mochida & Co.

References

1) American Psychiatric Association: Diagnostic and Statistical Manual of Mental Disorders, 5th ed (DSM-5). American Psychiatric Publishing, Arlington, 2013 (日本精神神経学会 日本語版用語監修, 高橋三郎, 大野 裕監訳: DSM-5 精神疾患の診断・統計マニュアル. 医学書院, 東京, 2014)

2) Burrows, C. A., Usher, L. V., Becker-Haimes, E. M., et al.: Profiles and correlates of parent-child agreement on social anxiety symptoms in youth with autism spectrum disorder. J Autism Dev Disord, 48 (6); 2023-2037, 2018

3) Cholemkery, H., Mojica, L., Rohrmann, S., et al.: Can autism spectrum disorders and social anxiety disorders be differentiated by the social responsiveness scale in children and adolescents? J Autism Dev Disord, 44 (5); 1168-1182, 2014

4) Kolvin, I., Fundudis, T.: Elective mute children: psychological development and background factors. J Child Psychol Psychiatry, 22 (3); 219-232, 1981

5) Kristensen, H.: Selective mutism and comorbidity with developmental disorder/delay, anxiety disorder, and elimination disorder. J Am Acad Child Adolesc Psychiatry, 39 (2); 249-256, 2000

6) Manassis, K., Tannock, R., Garland, E. J., et al.: The sounds of silence:

language, cognition, and anxiety in selective mutism.. J Am Acad Child Adolesc Psychiatry, 46 (9); 1187-1195, 2007

7) Muris, P., Ollendick, T. H.: Children who are anxious in silence: a review on selective mutism, the new anxiety disorder in DSM-5. Clin Child Fam Psychol Rev, 18 (2); 151-169, 2015

8) Pickard, H., Rijsdijk, F., Happé, F., et al.: Are social and communication difficulties a risk factor for the development of social anxiety? J Am Acad Child Adolesc Psychiatry, 56 (4); 344-351. e3, 2017