様　式　Ｃ－１９、Ｆ－１９－１、Ｚ－１９　（共通）

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研究課題名（和文）発達障害を基盤に有する強迫性障害の拡散テンソル画像解析

研究課題名（英文）A diffusion tensor imaging study of white matter in obsessive-compulsive disorder based on developmental disorder

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研究成果の概要（和文）：発達障害を基盤に有する強迫性障害患者の白質ネットワークを調べることを目的に、diffusion tensor imagingを用い、発達障害を基盤に有する強迫性障害患者と健常対照者の比較検討を行った。発達障害を基盤に有する強迫性障害患者群と健常対照者群のfractional anisotropy値を比較した結果、発達障害を基盤に有する強迫性障害患者群において、帯上束でfractional anisotropy値の有意な低下が示され、fractional anisotropy値と強迫症状が有意に相関する領域は示されなかった。

研究成果の学術的意義や社会的意義
発達障害を併せ持つ強迫性障害の大脳白質の詳細な構造を調べることを目的に、脳の撮影画像を用い検討を行った。発達障害を併せ持つ強迫性障害と対照を比較した結果、白質繊維の束であり、大脳辺縁系の各領域を結びつける役割を担う帯状束に特徴的な差異が示された。一方で、強迫症状に関係する領域は示されなかった。このことから、発達障害を併せ持つ強迫性障害に帯状束の構造的な変化が関連する可能性が示唆された。

研究成果の概要（英文）：In order to investigate changes in the white quality of obsessive compulsive disorder patients based on developmental disorders, we conducted a comparative study of obsessive-compulsive disorder patients based on developmental disorders and healthy controls using diffusion tensor imaging. As a result of comparing the fractional anisotropy of the obsessive-compulsive disorder patient group based on the developmental disorder and the healthy control group, fractional anisotropy tended to be significantly lower in cingulate gyrus in obsessive compulsive disorder patients with autism. There was no area where fractional anisotropy and obsessive compulsive symptoms were significantly correlated in obsessive comprehensive disorder patients with autism.

研究分野：精神神経科学

キーワード：神経症　画像解析

様　式　C－１９、F－１９－１、Z－１９、CK－１９（共通）

１．研究開始当初の背景

(1) In patients with an obsessive-compulsive disorder with high levels of autism or autism tendencies, in addition to the diversification and complexity of obsessive-compulsive symptoms, aggressiveness and impulsivity suppression failure, such as self-harm, attention deficit, and hyperactivity disorder occur at a high rate. Therefore, it is characteristic of the lack of sociality such as not being able to achieve harmony and communication well with others. In this way, the existence of a group of obsessive-compulsive patients with autism or having a high degree of autism tendency has been suggested, and utilization based on continuity from severe to normal has also been shown. However, the limited, repetitive, and conventional patterns of behavior, interests, and activities recognized in autism are characterized by non-functional and robust attachment to specific weeks and ordinances and an unusually strong attachment to limited objects and interests. Clinically obsessive symptoms and confusing. Therefore, it is assumed that it takes observation and evaluation in life in general, and enough clinical experience and the time and reliability of the diagnosis are often a problem for an accurate diagnosis. Image analysis is used to some extent to aid in the diagnosis of obsessive-compulsive disorder, based on white matter volume, degree of myelination, and extent of lesions. Possible future symptoms are also partially predicted but are not yet accurate enough. Even if the findings on the images are of the same degree, the degree of obsessive-compulsive symptoms often varies. Predicting neurologic prognosis from an early stage is of great significance for the early initiation of treatment, and many evaluations such as brain imaging have been shown, but no method has yet been established for accuracy.

(2) The functional connections of the obsessive-compulsive disorder brain have been pointed out, including circuits on the left lateral prefrontal cortex and striatum, and circuits on the orbital frontal cortex and dorsal prefrontal cortex. In addition, it has been pointed out that white matter abnormalities in obsessive compulsive disorder including the fascicles and internal forelimbs.

(3) The diffusion tensor image is a method of recording the diffusion direction of water molecules in a diffuse-emphasized image. By utilizing fiber tracking using diffusion tensor images, it is possible to diffuse the running of each nerve bundle and quantify the fractional anisotropy. Therefore, it is an imaging test that is widely used in the treatment policy determination and prognostic prediction of intracranial diseases and is expected to be applied to the field such as the evaluation of mental symptoms even in psychiatric patients.

２．研究の目的

(1) To examine the presence of white matter abnormalities in obsessive compulsive disorder patients with autism, group comparisons between obsessive compulsive

disorder patients with autism and healthy controls are performed in the diffusion tensor imaging images.

２．研究の方法

(1) At the research cooperative facility, clinical symptoms of patients with obsessive compulsive disorder with autism were evaluated and medical history was listened to. The structured clinical interview for DSM-V, autism spectrum quotient was used to assess the case of the disease and the presence or absence of other mental illnesses. The patients were interviewed about their growth history, family history, history, current medical history, treatment history, onset status, school attendance, working status, and family relationships. In addition, the age, was interviewed evaluation of healthy control patients who matched the sex.

(2) The 1.5 T MRI scans were performed. The tract based spatial statistics is an analysis method that creates a fractional anisotropy that represents the center of the main white matter to be analyzed. We assigned the subject's fractional anisotropy to this and performed statistical analysis, group comparisons between obsessive compulsive disorder patients with autism and healthy controls. Statistical analyses of the fractional anisotropy data were performed using tract based spatial statistics, group comparisons between obsessive compulsive disorder patients with autism and healthy controls. We performed multiple comparisons in obsessive computational disorder patients with autism using a cluster threshold. We informed the subjects about the purpose of this study, obtained a sufficient understanding, and obtained written consent.

３．研究成果

(1) The final analysis subjects were 11 in the obsessive-compulsive disorder group and 11 in the control group. There was no significant correlation between the severity of obsessive-compulsive symptoms and the total score of autism spectrum quotient. A significant correlation was found between the total score of autism spectrum quotient, attention switching, communication, hoarding, onset age, education age, and anxiety status. There was no factor that showed a significant correlation with imagination and attention. It was suggested that the obsessive symptoms of autism and recurrent rituals of obsessive-compulsive disorder were significantly lower than obsessive-compulsive symptoms. Patients with an obsessive-compulsive disorder who have developmental disorders are expected to shift to obsessive-compulsive symptoms according to their age, intellectual level, and mental development. It was inferred that hoarding symptoms would be an index to characterize the autistic tendency of obsessive-compulsive disorder with developmental disorders, and an index to be a treatment resistance factor.

(2) As a result of the analysis of major white matter using tract based spatial statistics,

no significant lower fractional anisotropy, group comparisons between obsessive compulsive disorder patients with autism and healthy controls was observed. Fractional anisotropy tended to be significantly lower in cingulate gyrus in obsessive compulsive disorder patients with autism. There was no area where fractional anisotropy and obsessive compulsive symptoms were significantly correlated in obsessive comprehensive disorder patients with autism.

(3) There are several issues to be solved. The autism spectrum quotient was used to evaluate the factors of developmental disorders. It was necessary to evaluate the factors of developmental disorders in structured interviews for the validity of the diagnosis. It was required to examine the effects of comorbidity such as anxiety and depression. It was needed to evaluate the effects of mental symptoms and cognitive function not included in the severity assessment of obsessive-compulsive disorder on various social dysfunctions. It was required to consider the comprehension of the question to the subject who had the factor of developmental disorder.

５．主な発表論文等

〔雑誌論文〕（計 件）

〔学会発表〕（計 件）

〔図書〕（計 件）

〔産業財産権〕
○出願状況（計 件）

名称：
発明者：
権利者：
種類：
番号：
出願年：
国内外の別：

○取得状況（計 件）

名称：
発明者：
権利者：
種類：
番号：
取得年：
国内外の別：

〔その他〕
ホームページ等

６．研究組織
(1)研究分担者

(2)研究協力者