The Importance of Multidisciplinary Approaches in the Use of Optical Coherence Tomography in Psychiatry

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Dear Editor,

Numerous studies have proposed that the neurodegenerative process is associated with psychiatric disorders. In order to demonstrate this process, the number of studies with neuroimaging methods is increasing (1). In some studies, visual pathways have been proposed as an ideal structure for the detection of neuronal degeneration. In particular, the retina is an anatomical extension of the brain and due to the embryological origin, ectoderm, and retinal changes may occur in parallel with neuronal degeneration (2, 3). Although the history of studies on eye findings in psychiatric diseases is based on old times, the use of OCT in psychiatric diseases has started in the last decade. According to our best knowledge, the relationship between psychiatric disorders and OCT was mostly investigated and reported by our research team (1-8). Even, we recommended these eye findings of OCT in patients diagnosed with psychiatric disorders as literally "twin doors opening to the brain" (4). In the studies we discussed the OCT findings in disorders such as schizophrenia (SCH), bipolar disorder (BD), obsessive-compulsive disorder (OCD), conversion disorder (CD), and major depressive disorder (MDD), we have reported that the ganglion cell layer (GCL) and inner plexiform layer (IPL) appear to detect neuronal degeneration beginning from early periods of disorders while a demonstrable change in RNFL occurs later in the disorders. Moreover, we stated that the choroid layer may be used to determine the active stage of the disorders and monitor the inflammatory process (2-4). In almost all of the studies investigating the relationship between OCT and psychiatry, it is stated that the lack of studies assessing the effects of neuropsychiatric drugs on OCT measurements also limits the discussion of the results (3-5). In this respect, although the OCT-related psychiatry studies have intriguing purposes, some of them have trouble regarding the psychiatric literature, methodology, interpretation of results in research.

The drug use is a very frequent confounding factor in OCT-related psychiatry studies. Adverse drug reactions (ADRs) have been classified as type A, B, C, D, and E (10). If we are investigating the "effect" of drugs on OCT parameters, it is not appropriate to discuss the findings of the study with case reports involving type B reactions due to drug use. Type B reactions are idiosyncratic, bizarre or novel responses that cannot be predicted from the known pharmacology of a drug. However, the reactions

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to be considered in the studies investigating drug effects are type A reaction that is predictable from the known pharmacology of a drug and type C reaction that describes the chronic exposure to the drug (10). The overriding concerns associated with OCT-related psychiatry studies are related to the methodology. First of all, there is a need for a group of patients who are drug-naive before examining the effect of any drugs on any structure. Disease duration and disease severity of the groups should be similar. In other words, it may be more appropriate for the studies to consist of three groups: drug-naive patient group, patient group used the drug, and healthy control group.

Some of the studies listed the psychiatric disorders without conforming to the psychiatric classification system and nomenclature but it is important in the interpretation of results. Who diagnosed the patients with psychiatric disorders? Psychiatrist? Patient statement? Which diagnostic system is it based on? Diagnostic and Statistical Manuel of Mental Disorders (DSM)? The International Statistical Classification of Diseases and Related Health Problems (ICD)? What is the duration of the disease with or without the drug after the initial diagnosis? Do patients have an attack or remission? Is the resistance to treatment questioned? Has any scale been used to reveal the severity of the disorders? Has a semi-structured interview such as the structured clinical interview for DSM axis I disorders (SCID-I) and symptom checklist 90-R (SCL 90-R) been applied to exclude psychiatric disorders in the control group? How were the additional psychiatric disorders excluded in the patient group? By SCID-I, by SCL 90-R? These questions should remain very important questions to be answered. The combination of SSRIs with other psychotropics is common in psychiatric practice. Is additional psychiatric drug use questioned? Is there a history of psychotropic use?

Studies show that the effects of psychiatric diseases on the central nervous system are related to the disease duration, disease severity, compliance with medical therapy and number of attacks, rather than the duration of drug use. Our idea is that the correlation analysis should primarily include the disorder parameters. Should the smoking and substance use effect be examined? It must be known whether a psychiatrist has prescribed drugs or not. Were these patients, on their own, using these drugs without meeting the diagnostic criteria of the psychiatric disorders? Is the OCT implementation time constant? Is the diurnal variation considered? Was the OCT shot made by the same person?

In conclusion, further studies with a multidisciplinary approach, including psychiatry, may lead to fewer confounding factors and will be able to provide a better interpretation of the results. As Eric Richard Kandel who was awarded the 'Nobel Prize in Physiology or Medicine 2000' stated in his precious review (12) entitled 'the new science of mind and the future of knowledge+ ', 'dialogues are most likely to be successful when the fields of study are naturally allied.'

Declaration of Interest

The authors report no conflict of interest. The authors alone are responsible for the content and the writing of these comments.

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