

## Department of Psychiatry

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### General Summary

Our research activities cover a wide range of topics: disorders at the psychological and biological levels, from childhood and adolescence, through adulthood, to the elderly period. Sociologic, psychologic, physiologic, and biochemical methods are used.

### Research Activities

#### *Psychogeriatric group*

We are performing several research studies investigating the neural basis of neuropsychiatric symptoms and social functions in patients with neurodegenerative diseases and elderly patients with psychiatric disorders. Methods of examination include neuropsychological testing; neuroimaging, such as brain magnetic resonance imaging and single-photon emission computed tomography; and genetic testing. We continue to study changes in the DNA methylation level as a biomarker of neurodegenerative diseases; we now focus on the effects of DNA methylation on the appearance of behavioral and psychological symptoms. We are also continuing multicenter collaborative research to develop methods for the early diagnosis of frontotemporal lobar degeneration and to assess clinical and genetic factors affecting its natural history. Also, in collaboration with the National Institute of Radiological Sciences, we are conducting research on tau imaging of neurodegenerative diseases and psychiatric symptoms. We are also studying the validity of treatment for patients with type 2 diabetes and cognitive decline.

#### *Morita therapy group*

In cooperation with psychotherapists of other methods such as cognitive-behavioral therapy and psychoanalysis, we have been developing programs and materials to train young psychiatrists to master the basic techniques of the clinical interview. We continued the following studies this year: (1) practical research towards obsessive compulsive disorder with autistic spectrum disorder, (2) practical research towards the application of Morita therapy to adolescent patients and patients with *hikikomori* (withdrawal), (3) the psychopathology of social anxiety disorders, (4) factors in the recovery of patients with depression through inpatient Morita therapy, (5) the application of Morita therapy to elderly patients, and (6) the application of Morita therapy for palliative care.

*Psychopharmacology group*

In basic research, we performed the following studies in rodents: (1) the formation mechanism of drug addiction, (2) the neural basis of addiction-related impulsivity, and (3) the development of a novel anticraving agent. These studies were performed in collaboration with the NTT Communication Science Laboratories and the Department of Psychology, Senshu University. In clinical research, we performed the following studies in humans: (1) biological, psychological, and social predictors of recovery in patients with schizophrenia; (2) regulation of the salience network by antipsychotic agents through dopamine D2/3 receptors with resting state functional magnetic resonance imaging; and (3) qualitative research on adherence in patients with schizophrenia. Integration between basic and clinical research is a fundamental concept of the Psychopharmacology group.

*Clinical electroencephalography group*

We attempted to interpret, on the basis of Neojacksonism (proposed by Henri Ey), cases in which psychotic symptoms associated with epilepsy were presented. Furthermore, we reported changes in serum concentrations of antiepileptic drugs (especially new ones) during the pregnancy of patients with epilepsy. A study was performed to prevent depression from recurring in patients with epilepsy. We examined the safety and efficacy of psychotropic drugs in several forms of psychosis associated with epilepsy.

*Psychophysiology group*

Studies examined: (1) changes in sleep structures due to cognitive behavioral therapy for insomnia using the cyclic alternating pattern method, (2) the efficacy of group cognitive behavioral therapy for primary insomnia and depression, (3) the effects of Chinese herbal medicine on sleep disorders, and (4) the biomarkers of fatigue in obstructive sleep apnea syndrome.

*Neuromodulation group*

Approximately 1 million patients with mood disorders are receiving medical treatment in Japan. However, few treatments are available for patients with treatment-resistant depression or bipolar depression. Our mission is to relieve symptoms in these patients by means of a noninvasive neuromodulation technique, such as repetitive transcranial magnetic stimulation (rTMS). Additionally, we seek to develop a medical device for filling unmet needs in cooperation with domestic and overseas companies and to promote regulatory science research.

The tasks that we are currently involved in are as follows: (1) postmarketing surveillance study of the efficacy and safety of rTMS devices in Japan, (2) expanding indications for bipolar depression using the Japanese advanced medical system, (3) research and development of maintenance therapy using rTMS, (4) research and development of a new measurement to treat depression, (5) research on the efficacy of rTMS in combination with a return to work program, (6) research and development of magnetic seizure therapy, and (7) research and development of computerized cognitive training.

We established a neuromodulation laboratory in September 2017 and are now preparing these research studies and clinical practice for the next fiscal year.

*General hospital psychiatry group*

In a study of interventional treatment based on cognitive-behavioral therapy aimed at preventing recurrences of depression, a computer system and sleep evaluation methods were introduced in addition to a previous evaluation system for more effective presentations and for more precise estimation. Also investigated were new indications for this intervention for atypical depression, bipolar depression, and insomnia. Another study investigated the issues associated with mental care services for patients with cancer of the digestive tract.

*Psychopathology, psychotherapy, and child study group*

We have twice provided supervision (supervisor: Dr. Sadanobu Ushijima; case presentations: Drs. Masanori Kawakami and Hikaru Seto) to residents to cultivate a psychotherapy mindset. We gave several case presentations at the 41<sup>st</sup> annual meeting of the Japanese Society of Psychopathology and at the 11<sup>th</sup> annual meeting of the Japanese Society of Anxiety and Related Disorders. Our strategy moving forward will be to (1) continue supervision, (2) examine the usefulness of the “desire for life” (Masatake Morita) in the postmodern era, and (3) research subtypes of Morita’s neurosis in the postmodern era.

*Clinical psychology group*

We have continued to discuss and study psychotherapeutic processes and the techniques of cognitive behavior therapy, art therapy, therapeutic assessment, Morita therapy, relief care, psycho-oncology, and social skill training. We have also examined the characteristics of developmental disorders and higher brain dysfunctions through psychological assessments. Furthermore, we have trained graduate students in a clinical psychological course.

**Publications**

**Nagata T, Shinagawa S, Nakajima S, Mimura M, Shigeta M.** Association between Neuropsychiatric Improvement and Neurocognitive Change in Alzheimer’s Disease: Analysis of the CATIE-AD Study. *J Alzheimers Dis.* 2018; **66**: 139-48.

**Nagata T, Nakajima S, Shinagawa S, Noda Y, Mimura M.** Pharmacotherapy for Alzheimer’s Disease: A perspective on treatment strategies in Japan. *Expert Opinion On Pharmacotherapy* 2018; **19**: 1301-3.

**Inamura K, Shinagawa S, Tsuneizumi Y, Nagata T, Tagai K, Nukariya K, Shigeta M.** Sex

differences in the severity of neuropsychiatric symptoms and their relationship with clinico-demographic and psychosocial factors in patients with amnesic mild cognitive impairment and mild Alzheimer’s disease. *Aging Ment Health.* 2018 Dec 27; 1-8. doi: 10.1080/13607863.2018.1539834. [Epub ahead of print]

**Tagai K, Shinagawa S, Kada H, Inamura K, Nagata T, Nakayama K.** Anosognosia in mild Alzheimer’s disease is correlated with not only neural dysfunction but also compensation. *Psychogeriatrics.* 2018; **18**: 81-8.