

## 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 in elderly patients with psychiatric disorders. We are focusing on the neuroprotective stress response regulator — repressor element 1-silencing transcription factor (REST) — and oxidative stress in the process of neurodegeneration. We also continue to study changes in the DNA methylation level as a biomarker of neurodegenerative diseases; now focusing on the effects of DNA methylation on the appearance of neuropsychiatric 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 effects of neuropsychiatric symptoms on the decline of activities of daily living.

#### *Morita therapy group*

We started to study the effect of outpatient Morita therapy in collaboration with other facilities. We have continued the following studies this year: (1) practical research towards obsessive compulsive disease 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 medicine.

*Psychopharmacological group*

In basic research, Professor Hisatsugu Miyata has studied neural mechanisms underlying substance dependence, especially focusing on the effects of the aversive stimulus on development and tolerance of the rewarding property of a substance of abuse (supported by a grant from Smoking Research Foundation) in collaboration with Department of Psychology of Teikyo University. In clinical research, Professor Miyata and postgraduate student Risa Yamada have conducted research on the clinical significance of psychiatric comorbidity in gambling disorders (supported by a grant from the Ministry of Health, Labour and Welfare. Assistant Professor Fumitoshi Kodaka has studies the change in functional connectivity after repetitive transcranial magnetic stimulation in patients with treatment-resistant depression (supported by a Grant-in-Aid for Scientific Research from the Ministry of Education, Culture, Sports, Science and Technology). J. Ishii has conducted a study of predictive factors of functional recovery of schizophrenia.

*Clinical electroencephalography group*

We discussed a patient who had nonconvulsive status epilepticus and psychic problems and are planning to submit a case report for publication. We have studied epilepsy in adults taking Resilience into consideration. We examined the safety and efficacy of psychotropic drugs in several forms of psychosis associated with epilepsy.

*Psychophysiology group*

Studies examined: (1) the empirical research regarding the efficacy of individual and group cognitive behavioral therapy for primary and comorbid insomnia, (2) the effects of Chinese herbal medicine on sleep disorders, and (3) the biomarkers of fatigue in obstructive sleep apnea syndrome.

*Neuromodulation group*

Neuromodulation is to relieve symptoms by modifying nerve functions with electricity, magnetism, and drugs. In neuropsychiatry, neuromodulation often refers to methods of treatment with electricity and magnetism. The mission of our group is to use repetitive transcranial magnetic stimulation, which is less invasive, and to promote the development of medical devices and to perform regulatory science research according to unmet needs in cooperation with domestic and overseas companies. The results of our group activities have been submitted to and accepted for publication in the journals *Neuropsychopharmacology Reports*, *Neuropsychobiology*, *Psychogeriatrics*, and *Psychiatry and Clinical Neurosciences*.

*General hospital psychiatry group*

In a study of interventional treatment based on cognitive-behavioral therapy aimed at preventing depression from recurring, a computer system and sleep evaluation methods were introduced with a previous evaluation system for more effective presentations and for more precise estimation. Also investigated were new indications for this treatment for patients with 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 and Psychotherapy Study Group*

In November 2019, we held a study group entitled “Reports from 2019 Conference Presentations” and had a very active discussion session. We are planning to hold an annual study group starting in the next fiscal year. We will continue to plan open study groups to further develop the fields of psychopathology and psychotherapy within the Department of Psychiatry. Assistant Professor Masanori Kawakami discussed some of his ongoing research in a presentation entitled “Current Concept of Desire for Life (Masatake Morita)” at the 42nd Annual Meeting of the Japanese Society of Psychopathology (Tokyo). He plans to prepare a manuscript based on his presentation.

#### *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, 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 course on clinical psychology.

#### *Developmental/Behavioral Neuroscience Group*

In our group, doctors and psychologists who are interested in developmental disorders and behavioral medicine have study meetings and journal club meetings on “Cognitive-Behavioral Therapy for Adult ADHD” (Solanto, 2013). Our research interest is focused on the neurophysiological response of patients with attention deficit hyperactivity disorder (ADHD) measured with near-infrared spectroscopy. We have begun a study project that seeks biomarkers of the effects of ADHD pharmacotherapy.

#### **Publications**

**Miyata H, Takahashi M, Murai Y, Tsuneyoshi K, Hayashi T, Meulien D, Sørensen P, Higuchi S.** Nalmefene in alcohol-dependent patients with a high drinking risk: Randomized controlled trial. *Psychiatry Clin Neurosci.* 2019 Nov; **73**(11): 697–706. doi: 10.1111/pcn.12914. Epub 2019 Aug 5. PubMed PMID: 31298784; PubMed Central PMCID: PMC6899457.

**Kito S, Miyazi M, Nakatani H, Matsuda Y, Yamazaki R, Okamoto T, Igarashi Y.** Effectiveness of high-frequency left prefrontal repetitive transcranial magnetic stimulation in patients with treatment-resistant depression: A randomized clinical trial of 37.5-minute vs 18.75-minute protocol. *Neuropsychopharmacol Rep.* 2019 Sep; **39**(3): 203–208. doi: 10.1002/npr2.12066. Epub 2019 Jun 25. PubMed PMID: 31240870.

**Nagata T, Shinagawa S, Yoshida K, Noda Y, Shigeta M, Mimura M, Nakajima S.** Early Improvements of Individual Symptoms With Antipsychotics Predict Subsequent Treatment Response of Neuropsychiatric Symptoms in Alzheimer's Disease: A Re-Analysis of the CATIE-AD Study. *J Clin Psychiatry.* 2020 Feb 11; **81**(2). pii: 19m12961. doi: 10.4088/JCP.19m12961. PubMed PMID: 32074412.

**Nagata T, Shinagawa S, Shigeta M.** The time-dependent trajectory of neuropsychiatric symptoms in patients with Alzheimer's disease. *Psychogeriatrics.* 2020 Feb 7. doi: 10.1111/psyg.12525. [Epub ahead of print] PubMed PMID: 32032460.

**Inamura K, Shinagawa S, Tsuneizumi Y, Nagata T, Tagai K, Nukariya K, Shigeta M.** Clinicodemographic and Psychosocial Factors Related to Presentation or Severity of Delusions of Theft among Females with Amnesic Mild Cognitive Impairment and Alzheimer's Disease. *Clin Gerontol.* 2020 Jan 26: 1–8. doi: 10.1080/07317115.2020.1720884. [Epub ahead of print] PubMed PMID: 31983299.

**Okabe K, Nagata T, Shinagawa S, Inamura K, Tagai K, Nukariya K, Shigeta M.** Effects of neuropsychiatric symptoms of dementia on reductions in activities of daily living in patients with Alzheimer's disease.

*Geriatr Gerontol Int.* 2020 Jun; **20**(6): 584-588. doi: 10.1111/ggi.13918. Epub 2020 Mar 31. PubMed PMID: 32232948.

**Matsuda Y, Kito S, Igarashi Y, Shigeta M.** Efficacy and Safety of Deep Transcranial Magnetic Stimulation in Office Workers with Treatment-Resistant Depression: A Randomized, Double-Blind, Sham-Controlled Trial. *Neuropsychobiology.* 2020; **79**(3): 208-213. doi: 10.1159/000505405. Epub 2020 Jan 17. PubMed PMID: 31955155.

### Reviews and Books

**Tagai K, Nagata T, Shinagawa S, Shigeta M.** Anosognosia in patients with Alzheimer's disease: current perspectives. *Psychogeriatrics.* 2020 May; **20**(3): 345-352. doi: 10.1111/psyg.12507. Epub 2020 Jan 12. Review. PubMed PMID: 31930617.