

Department of Internal Medicine

Division of Neurology

Yasuyuki Iguchi, *Professor*
 Masahiko Suzuki, *Associate Professor*
 Chizuko Toyoda, *Associate Professor*
 Takashi Hasegawa, *Assistant Professor*
 Renpei Sengoku, *Assistant Professor*
 Shusaku Omoto, *Assistant Professor*
 Yuka Terasawa, *Assistant Professor*

Hisayoshi Oka, *Professor*
 Hiroshi Yaguchi, *Associate Professor*
 Kazutaka Matsui, *Assistant Professor*
 Yu Kono, *Assistant Professor*
 Hidetaka Mitsumura, *Assistant Professor*
 Toshiaki Hirai, *Assistant Professor*

General Summary

Our researches in 2016 consist of the following areas: 1) cerebrovascular disease 2) neurodegenerative disease, and 3) autoimmune disease. We did not only clinical researches but started to do basic researches regarding these areas.

Research Activities

Cerebrovascular disease

We started a new multi-center study about the clinical characteristics in juvenile stroke and continued to take part in other multi-center studies (study about wake-up stroke, study about embolic stroke undetermined sources and study about stroke under anticoagulation therapy). Secondary, we established a pioneer project in Japan, consisting of stroke coordinate nurses (SCNs) who support the hyper-acute treatment including thrombolysis. Then, we did several prospective and retrospective studies from our stroke care unit (SCU) registry. The main theme of our clinical studies are follows: 1) right-to-left shunt (RLS) evaluation using a novel probe (pasteable soft ultrasound probe; PSUP), 2) Cerebral microbleeds in cerebrovascular disease, 3) Nonstenotic carotid plaque of ipsilateral embolic stroke of undetermined source, 4) the factors associated with hematoma expansion (HE) in acute intracerebral hemorrhage patients. On the other hand, we started the basic research to establish animal model (especially primate model) of cerebral infarction supported by The Jikei University Research Fund and Grant-in-Aid for Young Scientists (B).

Neurodegenerative disease

1. Parkinson's disease (PD) and the related disorders

We studied the cardiovascular autonomic dysfunction in patients with PD and the related disorders and we reported that The patients with reduced nocturnal blood pressure fall had a low cardiac uptake in¹²³I-MIBG scintigraphy. We also evaluated the influence of dopamine agonist for nocturnal blood pressure fall obtained from 24-hour ambulatory blood pressure monitoring test Nocturnal blood pressure fall may improve in patients which some dopamine agonist had administered. Moreover, we clarified olfactory dysfunction and digestive dysfunction are dissociated in de novo PD. We also wrote the

review discussing methodological problems inherent in wearable devices such as accelerometers and gyroscopes that quantify motor abnormalities, including decreased activity, gait disturbances, freezing of gait, falling, tremor and dyskinesia, as well as non-motor signs, such as sleep disturbances and autonomic dysfunctions in PD.

2. Swallowing function and respiratory function in the patients with neurodegenerative disease

We clarified that percutaneous endoscopic gastrostomy (PEG) with noninvasive positive pressure ventilation seemed to be a valid method for dysphagic ALS patients with respiratory failure.

Autoimmune disease

We continued to study human papillomavirus (HPV) vaccination associated with neuro-immunopathic syndrome (HANS). We demonstrated relative hypo-perfusion area in 3D-SSP with SEE analysis was most prominent in cingulate gyrus in patients after HPV vaccinations. Our study strongly suggested that various clinical symptoms with the HANS patients were caused by central nervous system impairment after HPV vaccination.

Publications

Mitsumura H, Miyagawa S, Komatsu T, Hirai T, Kono Y, Iguchi Y. Relationship between Vertebral Artery Hypoplasia and Posterior Circulation Ischemia. *J Stroke Cerebrovasc Dis.* 2016; **25**: 266-9.

Omoto S, Hasegawa Y, Sakai K, Matsuno H, Arai A, Terasawa Y, Mitsumura H, Iguchi Y. Common Carotid Artery Stump Syndrome Due to Mobile Thrombus Detected by Carotid Duplex Ultrasonography. *J Stroke Cerebrovasc Dis.* 2016; **25**: 23; e205-7.

Umehara T, Nakahara A, Matsuno H, Toyoda C, Oka H. Body weight and dysautonomia in early Parkinson's disease. *Acta Neurol Scand.* 2017; **135**: 560-7.

Umehara T, Nakahara A, Matsuno H, Toyoda C, Oka H. Predictors of postprandial hypotension in elderly patients with de novo Parkinson's disease. *J Neural Transm (Vienna).* 2016; **123**: 1331-9.

Umehara T, Matsuno H, Toyoda C, Oka H. Clinical characteristics of supine hypertension in de novo Parkinson's disease. *Clin Auton Res.* 2016; **26**: 15-21.

Sakuta K, Saji N, Aoki J, Sakamoto Y, Shibazaki K, Iguchi Y, Kimura K. Decrease of Hypertensive Vessels on Fluid-Attenuated Inversion Recovery Predicts Good Outcome in t-PA Patients. *Cerebrovasc Dis.* 2016; **41**: 211-8.

Sakuta K, Iguchi Y, Sato T, Sakai K, Terasawa Y, Mitsumura H. Chronic kidney disease is independently associated with acute recurrent cerebral infarct in patients with atrial fibrillation. *J Clin Neurosci.* 2017 Jun; **40**: 97-101. Epub 2017 Mar 9.

Komatsu T, Mitsumura H, Yuki I, Iguchi Y. Pri-

mary Sjögren's syndrome presenting with multiple aneurysmal dilatation of cerebral arteries and causing repetitive intracranial hemorrhage. *J Neurol Sci.* 2016; **365**: 124-5.

Komatsu T, Mitsumura H, Matsushima S, Iguchi Y. Migrating susceptibility vessel sign in posterior circulation stroke. *Am J Med.* 2016; **129**: e135-6.

Komatsu T, Terasawa Y, Arai A, Sakuta K, Mitsumura H, Iguchi Y. Transcranial color-coded sonography of vertebral artery for diagnosis of right-to-left shunts. *J Neurol Sci.* 2017; **376**: 97-101.

Sato T, Umehara T, Nakahara A, Oka H. Relative adrenal insufficiency in adult-onset cerebral X-linked adrenoleukodystrophy. *Neurology: Clinical Practice.* under publication. Epub 2016 Oct 2017.

Yamashita T, Miki A, Goto K, Araki S, Takizawa G, Ieki Y, Kiryu J, Tabuchi A, Iguchi Y, Kimura K, Yagita Y. Retinal ganglion cell atrophy in homonymous hemianopia due to acquired occipital lesions observed using Cirrus high-definition OCT. *Journal of Ophthalmology.* 2016; **9**: 1-9.

Saji N, Kimura K, Tateishi Y, Fujimoto S, Kaneko N, Urabe T, Tsujino A, Iguchi Y. Safety and efficacy of non-vitamin K oral anticoagulant treatment compared with warfarin in patients with non-valvular atrial fibrillation who develop acute ischemic stroke or transient ischemic attack: a multicenter prospective cohort study (daVinci study). *Journal of Thrombosis and Thrombolysis.* 2016; **42**: 453-62.

Yuan JH, Hashiguchi A, Yoshimura A, Yaguchi H, Tsuzaki K, Ikeda A, Wada-Isao K, Ando M,

Nakamura T, Higuchi Y, Hiramatsu Y, Okamoto Y, Takashima H. Clinical diversity caused by novel IGHMBP2 variants. *J Hum Genet.* 2017 Jun; **62**: 599-604. Epub 2017 Mar 9.

Takagi S, Kono Y, Nagase M, Mochio S, Kato F. Facilitation of distinct inhibitory synaptic inputs by chemical anoxia in neurons in the oculomotor,

facial and hypoglossal motor nuclei of the rat. *Exp Neurol.* 2017; **290**: 95-105.

Yamada S, Oikawa S, Komatsu T, Hrai T, Dohi K, Ogawa T. Early initiation of steroid pulse therapy for neuromyelitis optica in an emergency room setting. *AMS.* 2016; **3**: 171-3.