



**1. Reports of the Participants in Traveling Fellowship program (2016) supported by the Japanese Association of Rehabilitation Medicine (JARM)**

**Japanese Physicians supported by the Traveling Fellowship program (2016)**

**1) Yusuke Nanri, M.D., Ph.D.**

Department of Rehabilitation Medicine, Saga University Hospital, Saga, Japan

**Conference:** 10th World Congress of the International Society of Physical Medicine (ISPRM), May 31 - June 1, Kuala Lumpur, Malaysia

**Presentation Title:** The effect of combination therapy (botulinum therapy, orthosis, repetitive transcranial magnetic stimulation, and occupational therapy) in post-stroke outpatients with spastic upper limb hemiparesis

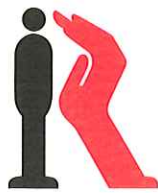
**Report:** I had the opportunity to participate in the 10th World Congress of the International Society of Physical and Rehabilitation Medicine (ISPRM). It was my first business trip to Southeast Asia, and I looked forward to experiencing the culture of Kuala Lumpur. The theme of my E-Poster was the effect of combination therapy (botulinum therapy, orthosis, repetitive transcranial magnetic stimulation, and occupational therapy) in post-stroke outpatients with spastic upper limb hemiparesis. I gave my presentation with the Petronas Towers behind me. Many foreign researchers were interested in our combination therapy and the time we spent together was very rewarding. In addition, I was able to learn the effects of various approaches such as robot-based rehabilitation, virtual reality, Tai chi chuan, and music therapy for post-stroke patients. In addition, I attended a presentation on the rehabilitation of cognitive impairment due to head injuries in sports that included leading theories in the West and Asia. Although we had very little free time, the Southeastern Asian food culture, which included the taste and the fragrance of unique spicy dishes and fresh durian from outdoor stands was very impressive.

I appreciate the Japanese Association of Rehabilitation Medicine for giving me this opportunity, and would like continue to contribute to this association via my everyday clinical studies.

**2) Syoichi Tashiro, M.D., Ph.D.**

Department of Rehabilitation Medicine, Keio University School of Medicine, Tokyo, Japan

**Conference:** 55th Annual Scientific Meeting of the International Spinal Cord Society



(ISCoS) , September 14-16, Vienna, Austria

**Presentation Title:** Spasticity secondary to neural stem cell transplantation combined with treadmill training in chronic phase spinal cord injury model mice

**Report:** I prepared a poster presentation on our recent research regarding the application of combination therapy with regenerative and rehabilitative approaches to the chronic phase spinal cord injury (SCI) mouse. Many studies have reported that no remarkable locomotor recovery is observed with transplantation single therapy in chronic SCI model animals. However, our results show significant locomotor recovery, even for chronic SCI model animals, when we combined neural stem/progenitor cells transplantation and treadmill training. The rehabilitation induced recovery in the number of neurons that inhibit the activity of the central pattern generator and ameliorate spasticity in the mouse hind limbs. Our results and presentation were described as an important milestone for the application of regenerative medicine for chronic SCI patients.

ISCoS is a congress composed of many specialties including rehabilitation, orthopaedic surgery, brain surgery, and urology, and an enthusiastic inter-disciplinary discussion occurs among the attendees with these various backgrounds. Initially, the meeting was scheduled to be held in Rio de Janeiro, but was changed due to the outbreak of Zika fever. The Hofburg Conference Centre belongs to the former Hofburg palace, a castle of Haus Habsburg located in the center of Wien city. Because of the very old architecture, there are many accessibility barriers that presented potential difficulty for attendants with disabilities. However, all attendants enjoyed the discussions held in this historical place.

**Visited Institute:** Danish Research Centre for Magnetic Resonance, Copenhagen, Denmark

**Report:** I investigated many state-of-the-art therapeutic modalities, including rTMS, tACS, tDCS, and fMRI. I also attended a collaboration meeting with the Denmark Institute of Technology and presented our recent research regarding combination therapy with stem cell transplantation and rehabilitation for chronic SCI.

### 3) Kenichi Ozaki, M.D., Ph.D.

National Center for Geriatrics and Gerontology, Aichi, Japan

**Visited Institute:** Division of Physical Medicine and Rehabilitation, University of Alberta, Edmonton, Canada

**Report:** From April 12th to 16th, 2016, I was on a study tour to the Division of Physical



Medicine and Rehabilitation at the Faculty of Medicine and Dentistry, University of Alberta. I visited the University Hospital and the adjacent Katz Group Centre for Pharmacy and Health Research. Professor Ming Chan, who kindly participated in our visit together with Associate Professor Hebert and Assistant Professor Pilarski, also conducts research in a large laboratory called the Bionic Limbs for Improved Natural Control (BLINC) Laboratory. In this laboratory, researchers collaborate in the study of neuron regeneration and computerized upper limb prostheses. The plastic parts of the upper limb prostheses and small tools needed for research are made on site using an in-house 3D printer. Observing the lab strongly indicated the need for such technology in our future research. On April 12th, I had an opportunity to present my own research on motion analysis and balance training and to discuss my findings, which was a valuable experience. The program on April 14th and 15th was a visit to the Glenrose Rehabilitation Hospital. The hospital offers specialized outpatient services including spasticity outpatient and electromyography laboratory, and uses gait analysis and driving simulation in the clinical setting. An impressive tool that I observed was the Computer Assisted Rehabilitation Environment (CAREN) system, which uses a flight simulator and a VR treadmill. This system reproduces various walking environments and appears to be useful in the evaluation and training of balance.

In 2000, I had visited the Province of Alberta as a tourist, and the population at that time was around 3 million. Since then, the population has increased sharply, reaching an estimated 4.14 million in 2014. The demographic structure is young, and there are fewer patients with stroke and femoral neck fracture compared to that in Japan. However, there are more amputations and traumatic injuries due to traffic or industrial accidents. Furthermore, the province enjoys a strong economy due to its rich resource of oil sands, and, thus, is generous in the spending on research and welfare.

Finally, I would like to thank members of the international committee of the Japanese Association of Rehabilitation Medicine for awarding me the overseas study grant. I will make use of the valuable experience gained from this tour to contribute to the development of rehabilitation medicine in Japan. I look forward to your continued guidance and support.

**4) Tetsuo Hayashi, M.D., Ph.D.**

Spinal Injuries Center, Fukuoka, Japan

**Visited Institute:** Stoke Mandeville Hospital, Aylesbury, United Kingdom

Swiss Paraplegic Centre, Nottwil, Switzerland

**Report:** It was a great honor to have a chance to visit two famous spinal injuries centers



in the United Kingdom and Switzerland. I visited the National Spinal Injuries Centre at Stoke Mandeville Hospital on August 1-5, and the Swiss Paraplegic Centre on August 8-12 as a clinical observer.

Stoke Mandeville Hospital in the UK was a model hospital for our Spinal Injuries Center, Fukuoka, Japan. Dr. Guttmann, who established the Paralympic Games, and Dr. Frankel, who created a classification of spinal cord injuries, are famous physicians from this hospital. I was impressed by their patient education system and their mental support for patients with spinal cord injury.

The Swiss Paraplegic Centre is a world-leading hospital in the field of spinal cord injury medicine with huge resources of manpower and funds. Many robots for rehabilitation are used. Also, their research center publishes many papers each year. In addition, they have supported many Paralympians using new training machines and an athletic field.

What can we do for patients with spinal cord injury in Japan? I think it is necessary to establish a new system to offer the best medical care for patients with spinal cord injury all over Japan, as we have only two spinal injury units.

I deeply appreciate the financial support to visit those hospitals, and I thank not only the Japanese Association of Rehabilitation Medicine, but also my colleagues.

### **A Foreign Physician supported by the Traveling Fellowship program (2016)**

#### **Shu-Chung Huang**

Attending Physician and Assistant Professor of PM&R Department, Chang Gung Memorial Hospital at Linkao, Taipei, Taiwan

## **2. Progress in Rehabilitation medicine**

Progress in Rehabilitation Medicine (PRM) is JARM's newly established open-access e-pub English journal. It is registered in J-stage which is a Japanese public database for scientific publications (<https://www.jstage.jst.go.jp/browse/prm>).