APHRS Asia Pacific Heart Rhythm Society

Introduction of the Electrophysiology Team from Taichung Veterans General Hospital, Taichung, Taiwan

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Introduction of the Hospital & Cardiovascular Center

Taichung Veterans General Hospital (Taichung VGH) is located in central Taiwan. It began offering medical services on September 16, 1982. Since 1991 it has been accredited as a "Medical Center and First-Class Teaching Hospital" by the Department of Health in Taiwan. Taichung VGH is a 1,500-bed hospital with approximately 3,000 employees. Its daily capacity allows it to take care of 6,000 outpatients, 130 inpatients and 180 emergency room patients.

Its Cardiovascular Center was established in 2014 after merging with the Cardiovascular Surgery Department. The Department of Electrophysiology is an integral feature of the center. Due to an increase in the complexity of cardiovascular disease and the burdens that ensue, cardiovascular interventions including PCI, catheter ablation, and device implantation which are provided by our institute continue to be on the rise and have thus contributed to an improvement in the patient care and general public health. This center has grown along with success to become one of the largest cardiology institutes in central Taiwan (Figure 1).

Electrophysiology Team

Cardiac Electrophysiologists within our team include Director of Electrophysiology: Tsu-Juey Wu, MD, PhD; Director of Heart Failure: Jing-Long, Huang, MD, PhD; Yu-Cheng Hsieh, MD, PhD; Cheng-Hung Li, MD; and Ying-Chieh Liao, MD (Figure 2). This team has collaborated closely in both clinical and basic research studies with Taipei VGH. Professor Shih-Ann Chen is the clinical mentor to Dr. Wu.

Physicians within the Electrophysiology team are responsible for treating patients with a variety of rhythm disorders. In addition, our facility has 3 catheter laboratories, where one of them is specifically for both catheter ablation and device implantation. Over the past 5 years, the case numbers of catheter ablation has been increasing each year, with an almost 2.5-fold increase as compared to that in 2011 (Figure 3). In 2015, we completed 288 cases of ablation, where the cases performed using 3-D mapping systems accounted for approximately 20% of the total ablation cases. In 3-D mapping cases, atrial fibrillation (AF) accounted for 59% of the total. The ablation procedure typically used in AF by our team is radiofrequency catheter ablation assisted

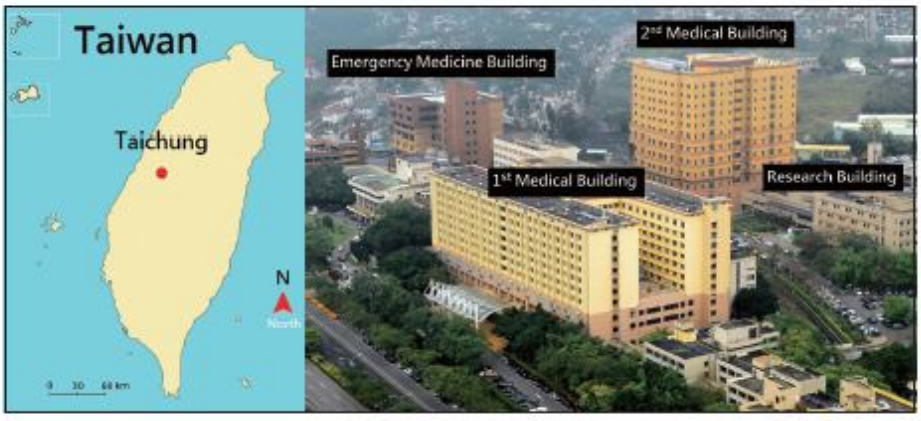

Figure 1. Location of Taichung and picture of Taichung Veterans General Hospital

Figure 2. Picture of EP staff
Tsu-Juey Wu and Jing-Long Huang are at the front row, 2nd and 3rd doctors respectively from the left
Author, Cheng-Hung Li, is at the 2nd row, 1st doctor from the left

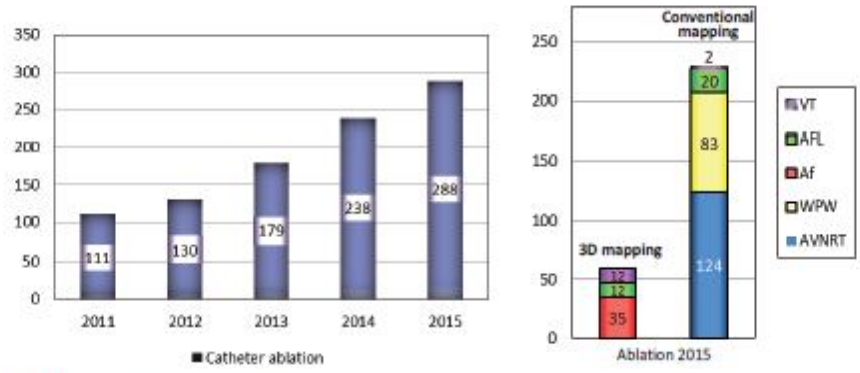

Figure 3. Case number of ablation therapy

by a 3-D mapping system (Ensite NavX system). The initial results found in AF ablation were favorable, with a single-procedure success rate of 83.3%, and a multiple-procedure success rate of 88.9%. Medtronic Arctic Front Advance Cryoballoon was introduced for paroxysmal AF ablation since October. 2014. At present, our institute is one of three hospitals in Taiwan which is capable of performing Cryoballoon ablation. Because the use of Cryoballoon ablation for paroxysmal AF is not currently being reimbursed by National Health Insurance, it has greatly limited the use of the procedure. Thus far, there have been 10 cases which we have completed using Cryoballoon ablation technique.

Device therapy treatments are also very important medical services which we have provided in the past. For rhythm disorders, including bradycardia, life-threatening tachy-arrhythmia, and drug-refractory heart failure, our case number of device therapy treatments (including pacemaker, implantable Cardioverter Defibrillators ICD, and Cardiac Re-synchronizing Therapy CRTP/D) has been approximately 170-290 procedures per year (Figure 4).

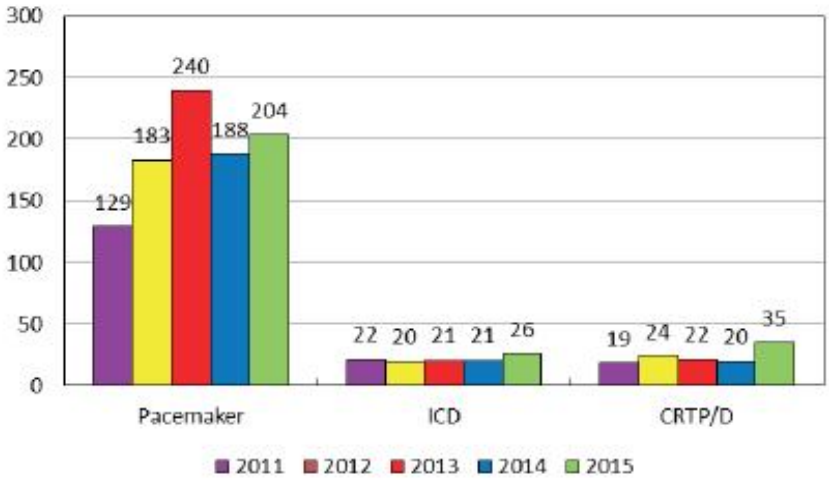

Figure 4. Case number of device therapy treatments

Research in Electrophysiology – Insights on Ventricular Fibrillation (VF) from Optical Mapping

Director of Electrophysiology, Dr. Tsu-Juey Wu, has been focusing on the mechanisms and pharmacological effects of VF in isolated rabbit hearts (Langendorff model) for years. After completing his training at Cedars-Sinai Medical Center under the leadership of his basic research mentor, Professor Peng-Sheng Chen, Dr. Wu first introduced and used optical mapping methods in his research on induced VF in isolated rabbit heart models when he returned to Taiwan. Currently, our team still continues with research on elucidating VF mechanism and has published numerous papers while presenting these issues in several regional and international scientific sessions over the last couple of years.

Our Aim and Vision:

We focused on performing comprehensive evaluations and management of patients suffering from complex heart rhythm disorders and advanced heart failure. The team experts provided electrophysiological studies, 3D mapping and radiofrequency catheter ablation of complex arrhythmias, Cryoballoon ablation for paroxysmal AF, and implantations of pacemakers, ICDs, CRTP/D, and Implantable Loop Recorders.

Our team makes great efforts to provide compassionate, patient-centered care, in order to solidify our position as a vital hospital for the treatment of heart rhythm disorders in Taiwan. Our commitment to becoming the nation's top rated medical center for the prevention, diagnosis and treatment of patients with heart rhythm disorders and advanced heart failure remains strong.

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