

First Southeast Asian MRgFUS Workshop:
Philippine General Hospital – October 7-8, 2023

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The first Southeast Asian MRgFUS Workshop was held at the Philippine General Hospital (PGH) on October 7-8, 2023. Magnetic resonance-guided focused ultrasound (MRgFUS) is a non-invasive procedure used to treat movement disorders such as essential tremor and tremor-dominant Parkinson's disease. This treatment utilizes high intensity focused ultrasound (HIFU) to create lesions in the affected areas of the brain to achieve symptom improvement. The focused ultrasound is guided by magnetic resonance imaging (MRI), which is why the procedure is performed inside the MRI suite. The most common indication for MRgFUS is tremor, with the Vim nucleus of the thalamus serving as the target. Since the procedure is performed in real time with the patient awake, the improvement in the patient's tremor can be seen immediately. Complications such as weakness and numbness can be avoided due to feedback from the patient.

The venue was PGH in the capital city, Manila. This is the largest tertiary hospital in the country (1500 beds) with the largest neurosurgery service and residency training program in the Philippines. In 2020, the PGH acquired the first MRgFUS system in the country, and only the second in Southeast Asia. However, we were only able to start doing cases in late 2021, due to the restrictions imposed by the Covid pandemic. Since then, we have performed 27 procedures, mostly on patients with tremor-dominant Parkinson's disease.

One reason why PGH purchased the MRgFUS system was to treat patients with X-linked Dystonia Parkinsonism (XDP), a uniquely Filipino disease. It is a debilitating hereditary neurodegenerative movement disorder occurring among Filipinos with roots from the Philippine island of Panay. Lacking effective treatment options, MRgFUS was found to bring some relief to a small group of XDP patients who underwent this procedure in Taiwan. One day prior to the workshop, the PGH HIFU team, together with Professor Takaomi Taira, performed a procedure on an XDP patient under a research study. This time, the target was the pallidothalamic tract, and the patient had excellent results.

In this workshop, 30 delegates from Singapore, Thailand, Vietnam, Indonesia, and the Philippines came together for a two-day conference to learn from masters in the field of MRgFUS and observe live MRgFUS treatments performed by the PGH HIFU team. The event was sponsored and supported by Insightec and Transmedic Philippines.

The course was held over two days. The first day consisted of lectures given by the leading experts in MRgFUS, headlined by Professor Takaomi Taira (Japan), one of the preeminent masters in functional neurosurgery worldwide. Other distinguished faculty lecturers included Professor Wei Chieh Chang (Taiwan), Professor Pei Han Wu

(Taiwan), Professor K. Madeswaran (India), and the Philippine team consisting of Dr. Jose Francisco Aguilar (functional neurosurgeon), Dr. Roland Dominic Jamora (movement disorder neurologist), Dr. Kathleen Joy Khu (neurosurgeon and MRgFUS program head), and Dr. Gerardo Legaspi (neurosurgeon and hospital director). Lecture topics included advances in neurosurgical management of movement disorders, treatment outcomes of MRgFUS, and setting up an MRgFUS program and sharing each center's experience with MRgFUS.

The second day consisted of live MRgFUS demonstrations of two cases. The first case was a patient with essential tremor while the second had tremor-dominant Parkinson's disease. There was a live video feed from the MRI suite/treatment room where the delegates could see every step in the patient preparation as well as planning and execution of the HIFU procedure. A proctor from Insightec provided a running commentary, and the international faculty shared their thoughts and experiences with the audience as well. The delegates took turns observing live in the MRI suite to witness the procedure first-hand. Since there were two cases, all the delegates had an opportunity to see the treatment live and not just through the video feed.

We received good feedback about the workshop. The delegates found the lectures interesting and asked a lot of questions. They also reported that attending the workshop gave them a good understanding of MRgFUS and made them feel that they were capable of setting up a similar program in their own center.

During this workshop, PGH was awarded and recognized as the first certified MRgFUS treatment center for movement disorders in Southeast Asia. Currently, there are only three hospitals in the region that are capable of performing MRgFUS treatment (2 in Thailand and 1 in the Philippines). PGH is the first to be certified as an MRgFUS treatment center by Insightec, the company that pioneered this technology.

