

THE RAREST GIFT – A NEW HEART

The number of heart donors in Singapore had steadily increased over the years, since the last Human Organ Transplant Act (HOTA) amendment in 2009. Yet, out of the total donated hearts received, only 20% to 30% of them are suitable for heart transplant.



Organ donation after brain death is on a voluntary basis in most other countries such as Australia, Europe or the United States of America. However, such voluntary donation remains uncommon in Singapore until a major amendment of the HOTA in 2004 mandating the compulsory donation of the heart, liver, kidneys and cornea in patients who have been certified to be brain dead, unless they have opted out of it prior to their demise. In spite of this, suitable donor hearts for transplantation have been few and far between.

**On average, only
TWO TO FOUR
HEART TRANSPLANTS
are performed each year in Singapore at the
National Heart Centre Singapore (NHCS).**

There are several obstacles to increasing the number of heart transplants performed in Singapore. Asst Prof Lim Choon Pin, Consultant at the Department of Cardiology, NHCS, explained that not only has the execution of the HOTA been challenging due to resistance to the retrieval of the organs by grieving and distraught relatives, the majority of potential donor hearts have been rendered unsuitable due to the presence of coronary artery disease in these potential donors as we see increased incidence of cardiovascular risk factors such as diabetes, hypertension or high cholesterol which lead to a decline in the quality of the hearts. Hence, the number of patients with end-stage heart failure on the heart transplant waiting list grows year on year.

To combat the lack of donor hearts, NHCS has implanted 90 artificial heart pumps, known as Ventricular Assist Devices (VADs), to keep patients alive while awaiting heart transplant since 2009. Patients undergo a major high-risk open-heart surgery to have this pump implanted within their chest and connected to their heart. The outcome is a wire that sticks out of their upper abdomen and is connected to a controller linking them to external electrical power supply in the form of batteries. While this pump has the ability to give them an improved effort tolerance and the energy to perform daily tasks and even exercise, there are significant lifestyle adaptations that need to be made to live with this pump. In Singapore, the survival rate of patients on VAD support is 87% at five years. Ultimately, the pump still has some significant disadvantages and risks of complication; thus, a heart transplantation is still the preferred long-term solution.



The Ventricular Assist Device is implanted into a patient's chest and connected to an external controller and batteries to help the heart pump blood around the body.

Image courtesy of HeartWare, Inc.



Serene Lee (extreme right), NHCS heart transplant patient, along with her heart donor's parents, Mr and Mrs Mark, who were visiting NHCS for the first time.

A NEW LEASE OF LIFE

Ms Serene Lee, 37, is a part-time clinic assistant who has been volunteering at NHCS and overseeing the heart failure patient support group for many years. She had dilated cardiomyopathy, a disease of the heart muscle which causes weakening of the heart and inability to pump blood efficiently. She was one of many patients on the waiting list for heart transplant and for years, she had to depend on VAD support until a suitable heart came along. When she finally underwent a heart transplant in 2015, she could not believe that she had been given a second chance at life. Her heart donor, a nursing student from Malaysia by the name of Ms Carmen Mark, had died after suffering an arterial rupture in her brain at the age of 18 and her parents had given their consent for Carmen's organs to be donated.

Somehow, as fate would have it, Serene did some sleuthing and managed to find out who her donor was. She finally plucked the courage to contact Carmen's parents, Mr and Mrs Mark, late last year. Since the bittersweet reunion, they had been coming forward to actively share their stories and raise awareness about organ donation.

Just last November, Serene brought Carmen's parents to NHCS to visit for the first time. Carmen was a recipient of the NHCS nursing scholarship and would have begun her nursing profession at NHCS upon graduation, had she not met with her unfortunate fate. Mr and Mrs Mark knew that they had to visit NHCS, just to see how the place is like, a place where both Carmen and Serene shared a close affinity to.

Mr Mark shared that it had not been an easy decision to donate Carmen's organs. He had initially gone through some internal struggle himself and admitted to facing some resistance from his own family before finally consenting to donate Carmen's organs. Deep down, Mr Mark knew that this was what Carmen had wanted as she had always wanted to help others, even after her death by donating her organs. He has plans to set up a foundation under her daughter's name to let her legacy live on. He believes in spreading love and kindness and these are values he had imparted to his daughter since she was a child.

There are currently more than 20 patients on the heart transplant waiting list and the average waiting time is typically three to four years, with some patients even waiting for as long as eight years. Asst Prof Lim revealed that the majority of heart failure patients who are on the list usually would not survive the wait, if not for the VAD. A successful heart transplant surgery will give the patient a good chance of leading a relatively normal life for at least the next 10 years. The average survival of heart transplant recipients in Singapore is 57.4% at 10 years, as opposed to chances of survival of less than 50% at one year for a patient with end-stage heart failure. Majority of the heart transplant recipients in Singapore have returned to a good quality of life, spending invaluable time with family and friends, and able to carry out daily activities without impairment. The longest living heart transplant recipient in Singapore has had over 30 years of life extended.

A good heart is not easy to come by, but what can help the lack of donors' heart situation is by encouraging people to adopt a more receptive mindset towards organs donation.