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NUH DEVELOPS SAFER AND MORE EFFECTIVE TREATMENT FOR ADVANCED GLAUCOMA

Patients with advanced glaucoma can now be treated with a unique therapy developed in Singapore at the National University Hospital (NUH) and now used in eye centres in other parts of the world.

Associate Professor Paul Chew, Senior Consultant with NUH's Department of Ophthalmology, invented the therapy known as the Micropulse Transscleral Cyclophototherapy (MPTCP) in 2007 to treat patients with advanced glaucoma. Working on the micropulse technique that has been used for laser treatment of retinal diseases, A/Prof Chew developed a customised probe to deliver a series of laser energy in short, gentle pulses into the eye. Each procedure takes slightly more than a minute to complete.

The MPTCP is a safer and more effective laser treatment procedure compared to the conventional Transscleral Cyclophotocoagulation (TCP) that delivers longer pulses of high-intensity laser energy into the eye. The treatment is also less painful and destructive.

According to an exploratory, comparative study at NUH in 2009 using a prototype of the probe, the MPTCP provides a more consistent and predictable effect in lowering eye pressure compared to conventional laser therapy. Within 12 months of treatment, 75% of the patients who received the MPTCP had their eye pressure reduced, compared to 29% who received the conventional TCP. None of the patients who went through the MPTCP had complications, while 20% who underwent the conventional TCP had. The same group of patients who received MPTCP was reviewed six years (mean) later, and their eye pressure remained well-controlled during the period.

The customised probe, which received a patent, has been used by eye surgeons worldwide since 2015. Over 45,000 patients from countries like the United States, the United Kingdom, the Philippines and Indonesia have benefited from the new therapy. More than 300 patients in NUH have undergone this therapy.

Glaucoma is a leading cause of irreversible blindness worldwide. In Singapore, it affects about three percent of those over 40 years old and the risk increases with age. It accounts for 40% of blindness in Singapore. In patients with glaucoma, the eye pressure is high due to the failure of adequate drainage of the aqueous fluid that circulates in the eye. Glaucoma can be controlled but not cured, and treatment must be continued throughout life. If left untreated, it can lead to permanent damage of the optic nerve, which can in turn lead to blindness.

In most patients, eye drops or oral medications are prescribed to lower the eye pressure. Surgery is required when medication alone is insufficient in controlling the eye pressure. Conventional TCP is only recommended after invasive surgeries fail to control the pressure because of the possible risks of abnormally low eye pressure, visual deterioration and eye shrinkage. The MPTCP is a safer and more effective therapy with almost no side effects.

“Glaucoma is a chronic disease that carries a significant burden on one’s health. There is a pressing need for innovative interventions to treat glaucoma in order to preserve a patient’s vision and thus, decrease disability and health care costs. Patients with advanced glaucoma can now look forward to a treatment which enhances their quality of life,” said A/Prof Chew, who is now looking at improving the probe and studying the effectiveness of the MPTCP on patients with mild to moderate glaucoma.

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About the National University Hospital

The NUH is a tertiary hospital and major referral centre for a comprehensive range of medical, surgical and dental specialties. The Hospital also provides organ transplant programmes for adults (in kidney, liver and pancreas) and is the only public hospital in Singapore to offer a paediatric kidney and liver transplant programme.

Staffed by a team of healthcare professionals who rank among the best in the field, the NUH offers quality patient care by embracing innovations and advances in medical treatment.

In 2004, the NUH became the first Singapore hospital to receive the Joint Commission International (JCI) accreditation, an international stamp for excellent clinical practices in patient care and safety. Today, patient safety and good clinical outcomes remain the focus of the hospital as it continues to play a key role in the training of doctors, nurses and allied health professionals, and in translational research which paves the way for new cures and treatment, offering patients hope and a new lease of life.

A member of the National University Health System, it is the principal teaching hospital of the NUS Yong Loo Lin School of Medicine and the NUS Faculty of Dentistry.

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