

Hydrocephalus: Ugandan doctors in major breakthrough

By Gloria Nakajubi

Arguably one of the biggest public health milestones as 2017 comes to a close, Ugandan doctors, together with a team of neurosurgeons from the US, have come up with a groundbreaking surgical procedure that would transform hydrocephalus treatment globally.

Unlike the commonly used practice of continually draining cerebrospinal fluid in management of hydrocephalus, they have developed a one-off operation called endoscopic third ventriculostomy with choroid plexus cauterisation (ETV/CPC).

Hydrocephalus is an abnormal build-up of cerebrospinal fluid within the brain. The brain chambers that release spinal fluids in this case do not drain properly. They eventually swell up, putting pressure on the brain and, if left untreated, it can be rather fatal or lead to disability.

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The study published in the *New*

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England Journal of Medicine this week, was carried out at the CURE Children's Hospital in Mbale. It is an initiative of the hospital's founding medical director, Benjamin Warf currently based at Boston Children's Hospital, over 15 years ago.

A total of 100 infants under the age of six months who had hydrocephalus as a result of a neonatal nervous-system infection were selected for the study. Fifty-one were randomised to ETV/CPC, and 49 to shunt placement.

Traditionally, hydrocephalus is treated by surgically placing a shunt to continually drain the cerebrospinal fluid. They place a long tube in the baby's brains, allowing the liquid to

drain into the child's stomach.

However, chances of failure are rather high and need to be replaced most of the time, through emergency neurosurgery. This is however not feasible, especially, in resource-constrained communities like Uganda.

Uganda has just about six neurosurgeons in the public health facilities, with three based at Mulago Hospital. For a condition, therefore, that requires one with such expertise, can only be a disaster.

Children, according to the researchers, are likely to die from shunt mal-function due to the absence of emergency neurosurgery.

- Abhaya Kulkarni, MD, PhD, of the Hospital for Sick Children in Toronto
- Steven J. Schiff, MD, PhD of Pennsylvania State University
- Edith Mbabazi Kabachelor, MD, MSc
- John Mugamba, MD of CURE Children's Hospital of Uganda
- Peter Ssenyonga, MD, of CURE Children's Hospital of Uganda
- Ruth Donnelly, PhD, the Hospital for Sick Children
- Jody Levenbach, PhD of the Hospital for Sick Children, Toronto
- Vishal Monga, PhD, Mallory Peterson, BS,
- Michael MacDonald, MS and Venkateswararao Cherukuri, M. Tech, of Penn State.

THE EXPERTS

According to neurologist Martin Kaddu Mukasa, shunts are characterised with such challenges as blockages. So, it calls for consistence

monitoring, which may not be possible due to a number of limitations.

ETV on the other hand, uses an endoscope to create an opening that allows trapped cerebrospinal fluid to escape from the brain cavities known as ventricles, while CPC uses an electrical current to burn off some of the fluid-producing tissue.

The over 15 years long study that involved testing and optimising has been found to be as effective as the shunt procedure clearing earlier fears that the method caused more damage to the brain than using a shunt.

The study was funded by the US National Institute of Health through the Eunice Kennedy Shriver National Institute of Child Health and Human Development and the Fogarty International Center.

It is such a huge milestone that Uganda is becoming the go-to place for researchers exploring this procedure as stated in one media report: "Yes, you read that correctly. The new technique has been so successful in the developing countries that American doctors are now travelling to Uganda to learn how to do the technique from Ugandan doctors."