

Innovative treatment to prevent common brain infection could save NHS 7 million pounds per year

September 12 2019

An innovative solution used to prevent common brain infections in patients having surgery for hydrocephalus has been found to significantly reduce infection rates according to a report published in *The Lancet* today.

Hydrocephalus is a build-up of fluid on the [brain](#). The excess fluid puts pressure on the brain, which can damage it. Approximately one out of every 500 babies is born with hydrocephalus, making it the most common reason for [brain surgery](#) in children.

Babies born with hydrocephalus (congenital) and adults or children who develop it (acquired) usually need prompt treatment to reduce the pressure on their brain. This is usually done with a shunt.

During surgery, a thin tube called a shunt is implanted in the brain. The excess cerebrospinal fluid (CSF) in the brain flows through the shunt to drain into the abdominal cavity where it is absorbed. Approximately 1300 new shunts (UK shunt registry) are inserted in the UK each year.

Unfortunately, shunt [infection](#) affects up to 15% of patients having shunt surgery, and is more common in children and neonates. Shunt infection is a serious complication that can lead to meningitis, weeks in hospital, prolonged [antibiotics](#), the need for further surgery and irreversible brain injury.

A team of scientists from the University of Nottingham, led by Professor of Surgical Infection Roger Bayston, developed a novel process (Bactiseal) that allows brain shunts to be impregnated with antibiotics during manufacture.

A team of researchers from the University of Liverpool, Alder Hey Children's NHS Foundation Trust and The Walton Centre NHS Foundation Trust conducted the largest—ever clinical trial for hydrocephalus to test the infection-reducing properties of Bactiseal. The BASICS trial (British Antibiotic and Silver Impregnated Catheters for ventriculoperitoneal Shunts) was funded by the National Institute for Health Research (NIHR), and cost £2.3M. Over 1600 patients with hydrocephalus took part, across 21 UK neurosurgery centres. The study took seven years (2012-2019) to complete.

The BASICS trial compared antibiotic and silver shunts to standard shunts (without antibiotic or silver coating). The results showed that antibiotic shunts reduce the infection rate from 6% to 2% and saved the NHS approximately £130K per infection averted. If the antibiotic shunts were used in all new patients, this would save the NHS approximately 7 million pounds per year.

The Chief investigators were Professor Conor Mallucci, Paediatric Neurosurgeon at Alder Hey Children's Hospital Trust, and Michael Jenkinson, Reader in Neurosurgery at the University of Liverpool and Consultant Neurosurgeon at The Walton Centre. The study was co-ordinated by Professor Carrol Gamble and run by the University of Liverpool's Clinical Trials Research Centre.

Conor Mallucci, said: "The results of our trial will have an impact on national and international hydrocephalus guidelines and policy. Using these antibiotic shunts will not only reduce potential harm to our patients but are also cost effective and should save Healthcare providers millions

of pounds avoiding countless unnecessary days in hospital.'

Michael Jenkinson, said: "The BASICS study shows that antibiotic shunts reduce the risk of infection for all patients having shunt surgery for hydrocephalus. If we use antibiotic shunts routinely we really can 'get it right first time' by avoiding harm and delivering better outcomes for all our patients."

Roger Bayston, said: "The antibiotic shunts have now been shown in a well-designed randomised controlled trial to significantly reduce infection in hydrocephalus shunts. This is a major step forward in treatment of this condition, which can affect newborn babies and adults alike, and will reduce the need for surgery and for antibiotic treatment and will save healthcare costs."

The full paper, entitled 'Antibiotic or silver versus standard ventriculoperitoneal shunts (BASICS): a multicentre, single-blinded, randomised trial and economic evaluation', can be found on *The Lancet* website once the embargo has lifted.

More information: *The Lancet* (2019). [DOI: 10.1016/S0140-6736\(19\)31603-4](https://doi.org/10.1016/S0140-6736(19)31603-4)

Provided by University of Liverpool

Citation: Innovative treatment to prevent common brain infection could save NHS 7 million pounds per year (2019, September 12) retrieved 23 April 2024 from <https://medicalxpress.com/news/2019-09-treatment-common-brain-infection-nhs.html>

This document is subject to copyright. Apart from any fair dealing for the purpose of private study or research, no part may be reproduced without the written permission. The content is provided for information purposes only.