WashU

Office of Technology Management

"THE REVOLUTION RESERVOIR AND CATHETER TIP": NON-CLOGGING SHUNT CATHETER TIP FOR IMPROVING SURGERY

Genin, Guy, Haydon, Devon, Leuthardt, Eric, Limbrick, David, Marcus, Richard, McLaughlin, Aaron, Moran, Daniel, Shah, Manish, Smyth, Matthew, Stone, Samuel, Wang, Lihong, Winek, Michael, Yang, Alexander

Weilbaecher, Craig

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Value Proposition: *New device that will reduce or eliminate the need for repeated surgeries to clear blocked catheter tips in ventriculoperitoneal shunts.*

Technology Description

Researchers at Washington University in St. Louis have developed a self-powered, rotating catheter system to prevent shunt failure in patients with hydrocephalus. Hydrocephalus is treated with ventriculoperitoneal (VP) shunts that drain excess cerebrospinal fluid away from the brain. However, these immobile shunts often fail because brain tissue that is continuously in contact with the shunt can grow and occlude the device.

The "Revolution Reservoir" is designed to solve this problem by rotating of the entire shunt catheter to discourage cell growth and occlusion, thus reducing or eliminating the need for repeated surgeries to clear blocked catheter tips in VP shunts, lowering risks to patients and reducing the total cost of treatment.

Stage of Research

Developed prototype that has been implanted in pigs

Applications

- Neurosurgery medical device – ventriculoperitoneal (VP) shunt system to treat hydrocephalus

Key Advantages

- Reduces shunt failure and revision
- Similar installation process as current shunts
- Discourages cell growth and occlusion
- Powered by harvesting kinetic energy of natural head movement

Patents

- Catheter assembly for use with shunt systems and method of using same (U.S. Patent No. 9,227,043)
- Method of using a catheter assembly (Divisional Patent Application, Publication No. US20160089520A1)

Related Web Links- Eric Leuthardt Profile**;** Leuthardt Lab