**Off With His Head**

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## 36-hour transplant surgery in China draws controversy

Head transplant? Piece of cake! All surgeons have to do during the 36-hour surgery is sing “Dem Bones” as they cut and paste a human head onto a donor body: “Hip bone connected to the back bone, back bone connected to the shoulder bone, shoulder bone connected to the neck bone, neck bone connected to the head bone, now hear the word of the Lord.”

You have to wonder what the Lord would think about the ambitions of Italian Dr. Sergio Canavero and Chinese Dr. Ren Xiaoping as they prepare to perform an $11-million head transplant on a 30-year-old Russian patient suffering from Werdnig-Hoffmann disease.

Everything about this case is complicated, beginning with the affliction of computer scientist Valery Spiridonov. Werdnig-Hoffman disease is also known as spinal muscular atrophy, a degeneration of nerve cells within the lowest region of the brain and motor neurons in the spinal cord.

“Motor neurons are nerve cells that transmit nerve impulses from the spinal cord or brain to muscular or glandular tissue,” according to rarediseases.org.

Spiridonov was afflicted with the disease as a child and has beaten the odds by surviving into his 30s. But life in a wheelchair and all the difficulties that come with the disease do not sit well with the Russian engineer. He volunteered to be the “guinea pig” in what will be the first-ever head transplant.

Controversy swirls around this case like bats in a belfry. The Italian doctor leading the surgery has been called a hoaxer and “Dr. Frankenstein” by some in the medical community. But Canavero shrugged it off while speaking in April during the 39th Annual Scientific Meeting of the American Academy of Neurological and Orthopaedic Surgeons.

“I am prepared for any nicknames, because it sounds cool and will help to sell more newspapers,” Carnavero said. “But I am very conservative when it comes to funding. When Bill Gates or (Russian millionaire) Dmitry Itskov fund my project, I’ll come to the cameras with the receipt and say, ‘This person supported my initiative.’”

Here’s the plan: The Russian’s head will be surgically disconnected from his body and then connected to a donor body. There is a concern about where that donor body will come from, as the surgery is scheduled to be done at Harbin Medical University in China’s northeast Heilongjiang province. China has been accused of harvesting donor organs from doomed death row inmates, and some in the medical community wonder who will donate the body onto which the Russian’s head will be grafted.

But the procedure is easier than at least one other.

“A head transplant is a surgical operation that involves the grafting of one organism’s head onto the body of another. It should not be confused with another, hypothetical, surgical operation, the brain transplant,” Dr. Ramin Oskoui, associate professor of medicine at the Georgetown University School of Medicine, told LifeZette.

Still, it is hardly easy peezy.

“Head transplantation involves decapitating the patient. Although it has been successfully performed using dogs, monkeys and rats, no human is known to have undergone the procedure,” Oskui said.

“Since the technology required to reattach a severed spinal cord has not yet been developed, the subject of a head transplant would become quadriplegic unless proper therapies were developed. This technique has been proposed as possibly useful for people who are already quadriplegics, and who are also suffering from widespread organ failures, which would otherwise require several distinct and difficult transplant surgeries.”

The procedure will have three steps. Step one involves lowering the body and brain temperature to between 10 to 20 degrees to prevent brain cells from dying.

Step two involves severing the Russian’s spinal cord with extremely fine surgical instruments to minimize damage. The head is then placed on the donor’s body and the spinal cord is fused using polyethylene glycol.

Step three involves stitching together the survivor’s blood vessels and nerves — an intricate surgical feat that has inspired more than a few doubters. Spiridonov will then be kept in a coma for several weeks to allow the two spinal cords to fuse.

Three steps — but as many complications as there are veins, arteries, nerves and brain cells. Still, as Oskoui pointed out, the patient has little to lose and everything to gain.

“SMA, or spinal muscular atrophy, is a fatal disease. Very similar to ALS. He is probably paralyzed already,” said Oskoui, who has not examined the patient.

The surgery is currently scheduled for December 2017.