Blood Vessels Grown From Patient's Skin

Cytograft, a biotechnology company seeking to develop a method of generating blood vessels outside the body, says it has used the technique to successfully repair damaged blood vessels in Argentina and Slovakia. The company plans to expand its studies to Europe and the United States after receiving approval from the U.S. Food and Drug Administration.

The Cytograft technique involves using a patient's own skin cells to create a vascular scaffold in the laboratory. The scaffold is then transplanted to the site of the damage, where it is expected to grow and integrate into the surrounding tissue.

The company has been working on this technology for over a decade, and has already received approval from the regulatory authorities in Argentina and Slovakia. The company is now seeking approval in the United States, where it plans to start clinical trials in the next few years.

The Cytograft technique is particularly useful in cases where traditional surgical procedures are not feasible, such as in the repair of damaged vessels in the arm or leg. The company is also exploring the potential use of this technology in the repair of damaged blood vessels in the heart and other organs.

The Cytograft team is currently working with Dr. Sergio A. Garrido, a vascular surgeon in Buenos Aires, to perform the first clinical trials in Argentina. Dr. Garrido said that the Cytograft technique could be a valuable addition to the surgical armamentarium for the repair of damaged blood vessels.

The Cytograft studies were done in a level II surgical center in Argentina, where annual vascular procedures (AVP) are much more common than in the United States. The patients all receive intravenous (IV) antibiotics and anti-thrombins before the operation. The patients are closely monitored after discharge to detect any potential complications.

This technology may be used to repair damaged vessels in the lower extremities, said Dr. Todd McAllister, a vascular surgeon in San Francisco. Unlike grafts from cadavers, he added, the Cytograft vessels are derived from the patient's own cells and can grow along with the patient as they do not require the lifelong anticoagulant therapy that is often needed for cadaver grafts.

The Cytograft vessels should be able to grow as the child does. "A potential benefit may be for infants and children with congenital heart defects," said Dr. Shinoka, who is working with Cytograft on the new vessel. He called the technique an advance over one he used in operations on children in Japan, where shunts are made from a blood vessel in the arm or leg, are then peeled and rolled into a tube, and then placed in the patient's leg for repair of damaged blood vessels.

"We believe that the Cytograft vessel will eventually allow us to repair a damaged artery," said Dr. Shinoka. "This would be a significant advance for patients who currently have no other options."

In the long run, the research in patients who take to it means more than a chance for survival, according to Dr. Shinoka. "It will be a chance for survival, and not just a chance to live longer, but to live better."