

# Japanese crew produces documentary featuring Covington doctor's research

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Dr. Gabriel Lasala's research and treatments will be part of a Japanese PBS documentary on regenerative medicine filmed Thursday at his office in Covington, thus bringing international attention to medical advances being made on the Northshore.

Lasala has been conducting clinical trials on his research using adult stem cells to regenerate damage to the heart caused by cardiovascular disease, among other medical conditions.

In the procedure filmed Thursday, Lasala and Dr. Ravi Kanagala, cardiac electrophysiologist, used a specialized procedure and equipment to map the heart of a patient who had previously undergone various bypasses to no avail. In fact, Lasala said that no traditional medical procedures were left as options for to the patient. All other medical procedures had been used and failed.

Lasala's treatment for the patient began two weeks ago, when he harvested stem cells and bone marrow from the patient to be used in the procedure. His partner, Dr. Jose Minguell, then separated, purified and expanded the Mesenchymal cells and kept them in the cryo-preservation freezer until ready for injection.

Thursday morning, the patient had fresh bone marrow removed and the endothelial progenitor cells were then mixed with the mesenchymal stem cells as a sort of cocktail of stem cells for the injection, about 30 million cells or 2cc of the solution.

Their research involves the use of MCS, or Mesenchymal stem cells that can differentiate into a variety of cells types and can regenerate damaged tissues such as bone, muscle, heart muscle and tendons; and EPC or endothelial progenitor cells that circulates in the blood and can differentiate into cells that make up the lining of blood vessels.

The bone marrow contains a number of different types of adult stem cells that are then separated into the EPC and MSC cells. The cells are then washed and placed in a special medium for expansion, similar to a Petri dish. Over a two to three week period, the original 1,000 cells grow into 30-40 million cells while in a specialized incubator.

Once they have multiplied, the cells go through a seven-step protocol to check the cells prior to patient infusion.



Cameraman Manabu Kitahara films the procedure in the catheter lab. Dr. Gabriel Lasala, in red collar, studies the monitor as part of the procedure. (Staff Photo by Debbie Glover)

The cells used are from the patient, or autologous cells. No one else's cells are put into a patient.

The procedure, filmed by the Japanese television station, involved mapping the heart to select a site for the injection. The heart itself gives off slight electric impulses and the Noga System, which uses sensors and X-ray, measures these to give a highly precise three-dimensional image of the heart. These images give a clear 'map' that helps Lasala to successfully deliver the adult stem cells where they are intended to go.

Lasala's machine is one of only four in active use in the country.

He inserts a catheter into the femur artery into the left ventricle of the heart. After mapping, the solution is then injected into the site.

Thus far, Lasala has had a 100 percent success rate in patients regaining or increasing heart function. Evidence of the results from a patient's perspective can be detected as early as the next day, or it can be gradual. Lasala records the results on a regular basis.

During the procedure, lead aprons must be worn by everyone in the room due to the X-rays involved. Noise is kept to a minimum and the alert staff concentrates totally on the monitors and the patient.

In filming the event, Lasala had to get permission from Johnson and Johnson, makers of the NOGA System, to allow filming.

The Japanese documentary is a series on the new medical field of regeneration, which is shaping the new horizons of medical research.

Before the procedure, Lasala met with the film crew in an interview session focused on his work, his research and his business as a physician.

During the past year, Lasala's practice has doubled in size due to the research he is conducting. Receiving no grant funding, Lasala subsidizes the research through private sources. His findings have been published in journals and presented at conferences internationally.

He easily spoke of his work to the show's crew: producer Atsuki Yamazaki, assistant producer and translator Atsuko Nameki, cameraman Manabu Kitahara and sound technician Shinji Himei. The procedure with Lasala is only one of several episodes that will air in the series. The crew expects to be in the country about a month.