

Brazil Becomes World Leader in Stem-Cell Research

Contributed by Lana Cristina
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Brazil is going to lead the greatest study of adult stem cells for treatment of heart diseases to be carried out in the world, considering the quantity of cases to be evaluated and the number of institutions involved.

There are nearly 40 medical and research institutions evaluating 1,200 patients suffering from 4 illnesses: acute infarction of the myocardium, chronic ischemic heart disease, dilated cardiomyopathy and Chagas cardiopathy.

The research, already being developed in the country for an effective treatment against the Chagas disease, for example, is unprecedented in the world.

The initiative is entitled Multicentric Randomized Study for Cellular Therapy in Cardiopathies and will involve resources in the order of US\$ 5 million, foreseen in the budget of the Ministry of Health.

The objective is to substitute traditional cardiac treatments - which include surgeries, medication and even transplants -, by the therapy with stem cells.

These cells have been studied for some years for the cure of many diseases, including some degenerative diseases such as Alzheimer's Disease.

Abundant in embryos and available, in smaller quantity, in more mature cellular tissues such as the umbilical cord and the bone marrow, stem cells are the matrixes that specialize to give origin to cells in specific organs such as, neurons, cardiac muscle, liver, skin, etc.

According to the minister of Health, Humberto Costa, the government decided to invest in cellular therapy because the technique has shown promising results in the whole world and offers a less invasive treatment, with a simpler surgery and shorter internment periods.

The patient who gets stem cells implanted in the heart can go home on the following day. Also, observed Costa, there will be a reduction in expenditure with coronary diseases in the order of US\$ 173 million per year.

Through the Single Health System (SUS) the public health system in Brazil, the government spent, in 2003, US\$ 191 million with doctor's appointments, bypass surgeries, transplants, internments and distribution of medication for hypertension and to improve heart failure.

It is estimated that, when replacing transplants for cellular therapy, the cost of the treatment will be reduced 10 times. "It is a very significant reduction," said the minister, although he emphasized that the main advantage is the comfort and quality of life the patient will benefit from.

"It is a simpler procedure to be carried out, the internment period is of 24 hours, there is no risk of rejection, no collateral effect, and the improvement in operation of the cardiac muscle is evident," he added.

The studies will last three years and, in this period, half of the patients will receive the traditional treatment, with the best pharmacological and surgical resources available.

The other half will receive cellular therapy. The aim is to show the technique's efficiency, which has been shown in isolated researches in Brazil, to adopt it as a treatment if the results are positive.

Currently, two institutions have carried out researches in the area, the Pro-Cardiac Hospital in the city of Rio de Janeiro and the Heart Institute (InCor) of the University of São Paulo (USP).

After the efficiency of cellular therapy is confirmed, the ministry of Health will adopt the treatment in the entire chain of hospitals of the SUS.

"This is, no doubt, the greatest cellular therapy for cardiac disorders study ever to be carried out in the world. And it will give us all the knowledge and know-how to, who knows, in a short period of time, adopt the therapy procedure in the SUS," he foresees.

In Brazil, 4 million people suffer of severe heart failure. If, at the end of the study, the efficiency of stem cells is proved in the recuperation of cardiac capacity, as is indicated in preliminary studies, it is estimated that 200,000 lives will be saved in three years.

The head of the Study for Cellular Therapy in Cardiopathies will be in charge of a coordinating committee formed by the researchers involved in the study.

The National Institute of Cardiology of Laranjeiras (INCL), in the state of Rio de Janeiro, will be the coordinating center, responsible for choosing the patients to participate in the study, monitoring them, providing technical consultancy, creating and maintaining a database, and also selecting and following the external monitors to evaluate the results.

There will be four anchor centers, the INCL, the InCor, the Institute for Biomedical Sciences of the Federal University of Rio de Janeiro (UFRJ) in collaboration with the Pro-Cardiac Hospital and the Hospital Santa Isabel in collaboration with the Gonçalo Muniz Research Center (from the northeastern state of Bahia), of the Oswaldo Cruz Foundation (Fiocruz).

Each one will take care, respectively, of studies with one of the target diseases of the research: dilated cardiomyopathy (INCL), chronic ischemic heart disease (InCor), acute infarction of the myocardium (UFRJ) and Chagas cardiopathy (Santa Isabel).

About 40 collaborating centers (from the states of Paraná and Rio Grande do Sul - in southern Brazil -, São Paulo, Rio de Janeiro, Espírito Santo and Minas Gerais - in southeastern Brazil -, Pernambuco, Ceará and Bahia - in the Northeast - and Goiás - in the midwest -) will be linked to the 'anchor' to carry out the studies.

Translated by Silvia Lindsey
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