

The construction, development and remarkable results of the Cuban model of Biotechnology are a true fact, the result of the Cuban Revolution; also dreams coming true in the unlimited creation of Fidel with his people in these last 50 years.

Heberprot-P® is a novel and injectable medicine developed at the Center for Genetic Engineering and Biotechnology (CIGB), together with Cuban medical institutions. It is a formulation used to stimulate and support wound healing and chronic complex ulcers in terminal stages of the lower limbs of diabetic patients. Its therapeutic properties, its mode of application and its niche indications are unique worldwide, with an impact on medical need, yet unfulfilled so far.

Numerous experimental studies at the CIGB in the last 15 years support the use of this new product, in which the action of the recombinant human epidermal growth factor is the active pharmaceutical ingredient. Its efficacy and safety has been demonstrated regarding evidence study facts and experience study facts in more than 14 000 patients.

Diabetic foot ulcer is one of the largest and most feared complications of diabetes mellitus as well as a serious medical and social problem not globally solved.

Diabetes mellitus constitutes a serious health problem, with an estimated of 300 million patients worldwide which data could be doubled in coming years in such a way that could cost more deaths than AIDS. It is the only non-contagious disease that shows a pandemic incidence, and accounts 84% of lower limb amputations resulting a disable human being. In essence, diabetic patients are undergoing an amputation every 30 seconds in a health care institution in the world; 50% of them may pass through a second amputation of the limb from 2 to 5 years, implying a significant deterioration in their life's quality and substantial costs to health systems. This situation can be aggravated after a major amputation because the five year survival rate for all lower amputees is less than 5 years.

According to international reports, between 15 and 20% of diabetic patients develop an ulcer in their lifetime, approximately 10 and 25% end in an amputation. For example, in the U.S. the number of diabetics has reached great proportions, affecting almost 21 million of the population, thus, between 80 000 to 120 000 suffer from any type of amputation every year.

In Cuba, the diabetic population is approaching half a million patients. This means that it has been estimated 12 000 patients with ulcers, and the number of amputations exceeds 1000 each year. Likewise, in our sister nation, The Bolivarian Republic of Venezuela, it has been estimated at over one million of diabetics; while the number of patients with ulcers and disabled from this illness is superior.

The enormous efforts to extend the benefits of this product through integral health care programs, organized into an integral specialized system for diabetic foot ulcer patients using Heberprot-P, is one of the most current unique medical item, with social and economic impact; hence, it is our main challenge facing today.

For the first time, national programs that have being already developed in Cuba and Venezuela, include specialized and integral care at the secondary level (hospitals), and its articulation with the primary care level for the attention and systematic and active monitoring of patients suffering from this disease. They count with a trained staff and facilities in the three health care levels.

From the medical and social point of view, these programs have attended hundred thousands of patients with this disease in the current 3 years of work, in which 13 000 treated with Heberprot-P have been benefited. 35% of them are patients with very advanced ulcers, even if they are not treated on time, between 60 and 65% end in an amputation, reported in the international literature. However, our experience in these programs shows that these amputations can be reduced to less than 10%, improving life's quality for those who either did not undergo amputation or would have died prematurely as a result of a major injury associated to his lower extremities.

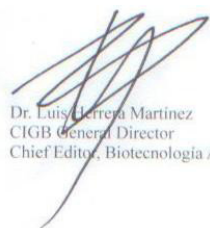
Other distinctive features have characterized the development of the national integral programs of care for diabetic foot patients, both in Cuba and Venezuela like: the high dedication to work, love, the Cuban and Venezuelan specialists' devotion, especially to those patients in advanced stages and very high risk of amputation, together with the results of the effectiveness of Heberprot-P, has touched and impacted physicians, patients and families.

Moreover, these programs have a significant economic impact due to the substantial savings in material and financial resources of health systems in countries that have developed the programs, reducing the healing time and the number of amputations, especially of major amputations. The main elements of cost associated with this type of illness are hospitalizations, surgeries, concomitant medications for the control of infections and recidives; costs associated with post-hospital rehabilitation services for prostheses, physiotherapy and indirect costs related to working life of disabled patients and their families providing support, defined as lost productivity value.

Consequently, this issue (No. 2 of volume 27, year 2010) of the journal *Applied Biotechnology* is devoted to the integral treatment of diabetic foot, especially to show the impact of the introduction and widespread use of Heberprot-P in the treatment of diabetic foot ulcers, both in Cuba and Venezuela. Therefore, it serves as a prelude to the celebration of Havana Biotechnology scientific event, which will be held at the facilities of the center for Genetic Engineering and Biotechnology (CIGB) in Havana, Cuba, from 20 to 22nd October 2010 and de-

voted to THE INTEGRAL MANAGING OF DIABETIC FOOT ULCER PATIENTS USING HEBERPROT-P. This event will gather leading researches and renowned experts in various fields and different countries to exchange experiences about this subject.

All are invited to assist.



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