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Short Communication

Translational Medicine in Tissue Regeneration

Short Communication

Translational medicine basically aims to facilitate the integration of basic research with clinical research, with the aim of transferring the applicability of its benefits to the population as a whole [1,2]. According to Lean et al., "It is a process that part of the evidence-based medicine towards sustainable solutions to community health problems" [3].

In addition, translational research generates an increase in the capacity for health research with an interdisciplinary and multidisciplinary approach, forming, training and integrating a new generation of researchers [4].

Among the translational researchers with a strong focus on clinical applicability, it highlights the tissue regeneration, especially in bone and/or nerve repair. The recovery of bone loss or nerve damage, particularly in the areas of Medicine and Dentistry, lead to a constant demand for biomaterials and/or techniques that facilitate and propitiate the formation and regeneration of new tissue [5].

The development of new biomaterials and the use of stem cell therapies for application in regenerative medicine involve several translational researches [6]. To provide the formation of a new bone, biomaterials must be resorbable over time, have biocompatibility and biofunctionality, generate no immunological response and economically accessible, being the primary objective of tissue bioengineering [7].

Regarding the clinical applicability of the researchers on nerve repair, the correct reinnervation of the target organs is the main objective of the nerve repair, in order to obtain a directed axonal regeneration that provides functional sensory and motor recovery. The location, type of injury, time of surgery, type of repair to be used, correct alignment of the fascicles, surgical technique and morbidities to be presented in the postoperative period should be taken into account in order to predict the results of peripheral nerve repair [8].

Based on this context, a group of Brazilian researchers, led mainly by Benedito Barraviera and Rui Seabra Ferreira Júnior (Center for the Study of Venoms and Venomous Animals - CEVAP, São Paulo State University - UNESP, Botucatu, São Paulo) since the 1990s, have been studying the new heterologous fibrin sealant composed of a serine protease extracted from *Crotalus durissus terrificus* venom and a cryoprecipitate rich in fibrinogen extracted from the buffaloes *Bubalus bubalis* blood [9].

This new biopharmaceutical has enormous potential application in Medicine and Dentistry [10], which presents greater purity, lesser toxicity and greater adhesiveness [11-15]. From 2011 we have been developing a clinical trial research I/II applying in patients with chronic venous ulcers [16,17].

Many researchers are developing translational researchers aimed at innovative applicability's for new biological materials, as the heterologous fibrin sealant, providing a scaffold for stem cells, for the correction of bone defects and nerve damage [18,19]. There are already drugs, derivatives of peptides or proteins of venoms, which are approved. Some of these are in clinical trials and others in several stages of preclinical development [20]. We emphasize the fact that most of them are developed in the Northern Hemisphere, but this Brazilian initiative proves to be very promising.

In conclusion, by obtaining high quality results in the regenerative processes of the tissues, translational researches favor the accessibility and rapidity in the recovery of human health, contributing in the improvement of the quality and life expectancy of the world population.

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