A Controllable Brain Injury Model with a Defined Size for Evaluation of Tissue Engineered Products

Hadi Aligholi1, 2*, Maryam Safahani 1, 3, Sajad Sahab Negah1, Sayed Mostafa Modarres Mousavi1

1Shefa Neuroscience Research Center, Khatam Alanbia Hospital, Tehran, Iran.  
2Department of Neuroscience, School of Advanced Technologies in Medicine, Tehran University of Medical Sciences, Tehran, Iran.  
3Department of Nutrition, Tehran University of Medical Sciences, Tehran, Iran.

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Abstract

Brain injury has a multiple pathophysiology for which there is no definite treatment. In this regard, tissue engineering is one of the probable strategies for repair of damaged tissue. But creating a proper model for testing the engineered products faced some difficulties, specially, when we want to evaluate the effects of a product on the volume of injury. The current brain injury methods couldn’t provide defined brain tissue damage. We propose a new method to solve the problem. Previously, we introduced a new method for harvesting subventricular tissue from adult rat brain using a modified semi-automatic biopsy needle. We showed that a defined volume of tissue harvested from a specific area of brain without any adverse effect on other regions. We suggest using this biopsy procedure for creating a brain injury model with a defined size. Using this controllable biopsy method, we can test engineered products in a rat model of brain injury and assessed the volume of cavity after performing treatments in different groups.

Keywords: Brain Injury, Subventricular Tissue, Biopsy.

*Corresponding Author: Hadi Aligholi

E-mail: aligholihadi@gmail.com