PR-I-13. A Study on the Neural Differentiation from Alveolar Bone Marrow-Derived Adult Stem Cell

Wan-Su Kim*, Jea-Bong Song, Doh-Hyun You, Yun-Sang Kim, Sung-Hee Pi, Hyung-Keun You, Hyung-Shik Shin

Department of Periodontology, College of Dentistry, Wonkwang University

Background

Recently, marrow-derived adult stem cells are paid close attention as these cells can be used in the cell replacement therapy for nerve injury diseases thanks to their self-production ability and excellent multipotency.

This study intends to find whether adult stem cells from alveolar bone can be differentiated into neural cells in vitro, while other previous studies on neural differentiation used to harvest bone marrow from iliac crest and femur.

Materials and methods

Human bone marrow-derived adult stem cells (HBMASC) were separated from healthy alveolar bone. Mesenchymal stem cells were confirmed by cell surface markers CD29 and CD44, and cultured at preinduction media (αMem+BME) and induction media (DMSO/BHA) to differentiate into neural cells. Under these culture conditions, it was confirmed that neuronal markers such as nestin, GFAP and Map-2 were expressed through RT-PCR, Western blotting, and immunocytochemistry. Especially, GFAP appeared at 3 hours and Map-2 appeared at 1 day in (HBMASC) through western blot.

Results & Conclusions

Based on these results, it could be confirmed there are stem cell population which are able to be differentiated into neuron and glial cells even in the alveolar bone.