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BOOK OF ABSTRACTS

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tion shows combustion II and III grade on the leg and the arm. At oral examination radix with curved pin is discovered (upper left canine) which has vertical fracture, and slight movable fragment. Conclusions: Metal dental restorations can be part of a voltaic arc, to an electrical injuries in the oral cavity and heart attack. Key word: electrocution, prosthetic denture, carbon rod, fishing.

PP17
DENTAL PULP STEM CELLS AND BONE TISSUE ENGINEERING

I. Karadzic[1], D. Markovic[2], J. Debeljak Martacic[2], V. Vucic[2], B. Nikolic[3]

[1]*Institute For Medical Research University of Belgrade, Belgrade, Serbia*
[2]*Faculty of Dentistry University of Belgrade, Belgrade, Serbia*
[3]*Health Centre Subotica, Subotica, Serbia*

Background. The main objective of this study was to examine the differential capacity of isolated dental pulp mesenchymal cells (SHED) in relation to 4 different cell carriers - scaffolds: porous hydroxyapatite (pHAP) and porous hydroxyapatite combined with 3 polymers: poly lactic-co-glycolic acid (PLGA), alginate and ethylene vinyl acetate / ethylene vinyl versatate (EVA / EVV). Methods and Materials. The research involved the isolation of SHED from human exfoliated deciduous teeth shift by "outgrowth" method and their characterization by flow cytometry. Cytotoxicity of biomaterials in the presence of mesenchymal cells was tested by MTT and LDH test. Evaluation of osteogenic differentiation of SHED on 3D biomaterials samples was performed by alkaline phosphatase activity measurements and scanning electron microscopy. Results. The differentiation of SHED in 3 different cell types - adipocytes, chondrocytes and osteoblasts, and characterization of these cells by CD29, CD73, CD90 and CD34 antibodies, showed the isolated cells were mesenchymal stem cells. Increased alkaline phosphatase activity of cells cultured on all studied materials was observed compared to alkaline phosphatase activity of cells cultured on Bio Oss. The developed ECM confirmed the differentiation and a very good biocompatibility between cells and materials. Conclusion. This study indicates that all investigated materials can serve in future studies as a basis for obtaining cellular carrier in bone tissue engineering and to allow binding of osteoblasts and osteoblast precursors, their growth and differentiation. In particular, the best results were obtained in pHAP combined with PLGA.

PP18
THE USE OF SCAFFOLDS IN DENTAL REGENERATIVE MEDICINE

D. Ciric[1], T. Kanjevac[1], M. Popovic[1], D. Bosnakovski[2]

[1]*Faculty of Medical Science, Kragujevac, Serbia,* [2]*Faculty of Medical Science University Goce Delcev, Stip, FYROM*

Scaffolds can be used as replacements for diseased or damaged tissues. Their role is to provide support for delivering cells and/or growth factors to the proposed site of tissue regeneration. The aim of this review was to describe the current types of scaffolds and evaluate their use in combination with stem cells for tissue engineering applications. We searched for published studies reported from 2008 to 2014 by using keywords: scaffold, dental regenerative medicine, stem cells, tissue engineering. Cells and tissue response to a scaffold depend upon the composition of the scaffold, its surface microstructure and three-dimensional architecture. Currently proposed scaffolds are made of natural or synthetic polymers, metals, and ceramics such as calcium phosphates, calcium sulphates, and biological glass. Scaffolds should have appropriate porosity and the mechanical properties that are appropriate for the cells and their macro- and microenvironments. Cells can be seeded onto the scaffold and culture in vitro to generate tissue before transplantation, or can be transplated cell-free scaffolds with incorporated signaling molecules which induce the homing of stem cells residing in tissues and promote their differentiation. The concept of tissue engineering is being applied for treatment of salivary gland disorders, regeneration of craniofacial tissues, oral mucose, periodontium, dentin and dental pulp. Scaffolds allow cells attachment and migration, deliver and retain cells and biochemical factors, enable diffusion of vital cell nutrients. The use of scaffolds can overcome the drawbacks of traditional bone graft materials and offer a novel way for bone repair and regeneration.