

LABORATORY OF TISSUE ENGINEERING AND CELL CULTURES

106. TISSUE ENGINEERED VASCULAR GRAFTS: DECELLULARIZATION OF PORCINE AORTA THROUGH THREE DIFFERENT METHODS

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Introduction. Cardiovascular diseases are the number one cause of death globally. Vascular surgery, and namely coronary artery bypass grafting (CABG) and peripheral artery bypass grafting (PABG), are the preferred treatment for long-term revascularization. Considering the limitations and unsatisfactory clinical results of synthetic grafts, and limited availability of autologous vessels, tissue engineering has become a promising approach in development of new vascular prostheses. The use of decellularized matrices is one of the various perspectives explored in this field.

Aim of the study. To evaluate the efficacy of three methods in vascular tissue decellularization and to identify the technique that can provide preservation of both mechanical properties and immuno-privileged characteristics of autologous vessels.

Materials and methods. Fresh porcine aorta was obtained from the local slaughterhouse. After dissection of the surrounding connective tissues the samples were subjected to chemical treatments, comprising: A – 1% Triton-X 100, 1% SDS and 0,02% EDTA; B – 1% SDS, 5% DMSO and 0,02 %EDTA; C – 0,1Mm HCl. All the experiments were performed under the steady temperature (37 C) and agitation (200 rpm) for 48 hours. The decellularization effectiveness was evaluated by means of histology and DNA content testing.

Results. The histology study showed incomplete cell removal in the B group, in addition, alteration of the extracellular matrix was identified in all cases. DNA quantification demonstrated the high level of the cell remnants in SDS group.

Conclusions. Our results demonstrated feasibility of chemical treatment in development of acellular scaffolds. However, when used alone SDS was not confirmed to be suitable for complete cell removal. In addition, before a large clinical application of these grafts a more complex evaluation (mechanical testing, cytocompatibility, in vivo testing) is necessary.

Key words: Regenerative medicine, tissue engineering, vascular grafts, decellularization, biological scaffolds

TRAUMATOLOGY AND ORTHOPEDICS SECTION

107. TREATMENT PECULARITIES IN TROCHANTERIC FRACTURES

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Introduction. Trochanteric fracture in adults overwhelming affects elderly subjects. Frequency is increasing with population aging despite the development of treatments for osteoporosis. In elderly subjects, fracture entails a serious risk of loss of independence best reduced with surgery (usually conservative) that should be undertaken with minimal delay. Treatment is surgical, of various sorts. Open reduction internal fixation (ORIF) with intra- or extra-medullary implants is the most frequent attitude in these fractures, which usually heal easily. In elderly patients, arthroplasty is an alternative of choice for some authors. These different treatment modalities are presented, focusing on technical details.

Aim of the study. To evaluate the treatment methods of the pertrochanteric hip fractures

Materials and methods. We studied a patient-based cohort, overall 209 patients from Orthopedic Department of Emergency Medicine Institute during period 07.02.2018 – 07.02.2020.

Results. The majority of pertrochanteric hip fractures was found in women – 65% (137), men – 35% (72). In 95% the main cause of the fracture was usual (habitual) trauma, 5% - car accidents. The group was divided by age: 75-96y – 103p (49%), 45-60y – 78p (37%), 45-60y – 24p (11%), <45y – 4p (1.9%). Fractures were divided by Evans Classification: Evans I – 9p (4.3%), Evans II – 22p (10,5%), Evans III – 28p (13,3%), Evans IV – 28p (13,3%), Evans V – 118p (56.4%), Evans R – 4p (1.9%). 37% (79p) had benefit from the orthopedic treatment, 63% (130p) have undergone the surgical method. In 76% (99p) was used PFN, in 17% (22p) – DHS, in 4.5% (6p) – cemented hip hemiarthroplasty was performed, in 2.3% (3p) – DCS, in 1.5% (2p) – uncemented hip hemiarthroplasty, in 0.7% (1p) – total hip joint replacement was performed. The average length of hospitalization was 9 days.

Conclusions. Even though there is a large pool of surgical methods of treatment, a big number of patients had the benefit from orthopedics type of treatment. The main cause is the existence of high anaesthetical and surgical risks. Surgical type of treatment in case of pertrochanteric hip fractures allows to prevent different types of complications. Kaufer variables are used to choose the fixator for the osteosynthesis. The key for better results is to choose an individual postoperative regimen for every patient.

Key words: Trochanteric fractures, Internal fixation, Arthroplasty, Surgical technique

108. PERIAREOLAR BREAST REDUCTION

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Introduction. The purpose of this study is to examine the preoperative, operative and postoperative management of the periareolar breast reduction intervention. These include marking, anticipating anatomical changes by reducing weight and volume, adjusting the nipple-areolar complex as a whole, and monitoring post-traumatic regeneration.

Aim of the study. Indications and contraindications for this intervention; Shall list the advantages and disadvantages; Establishing the effectiveness of pre and post operative monitoring methods.

Materials and methods. In order to provide reliable study data, patients who have been operated at the "TerraMed" Clinic and diagnosed with hypertrophic mammary gland were supposed to use the "Periareolar Breast Reduction". Were taken into account information about