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Allograft heart valves harvesting, processing and transplantation in Iran

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The Cell, Tissue, Organ Bank is a multi-tissue bank with highly qualified staff in Legal Medicine Research Center (LMRC). We provide and process all types of cadaverous tissue including heart valves. After the initial examination of the cadavers, review of the medical records of the referred deceased, and interview with their families knowing the quality of life before death, written consent is obtained for tissue donation. These tissues collect in sterile conditions and serological examination of all cases is done in terms of possible contamination.

Human heart valves have been used in transplant surgery for nearly 60 years and banking of valves has been performed during this time. Although, previous investigations have been showed cryopreserved allograft valves were morphologically non-viable valves [1], but despite the wide choice of commercial heart valve prostheses, cryopreserved allograft heart valves are successfully transplanted now. Heart valves have been disinfected using chemical agents, radiation and in present times by antibiotics and stored freeze dried or solid carbon dioxide and nowadays in the vapour phase of liquid nitrogen refrigerators.

The human immune responses is one of the major concerns in tissue transplantation. Immune privilege is an developmental adaptation that protects vital tissues after transplantation. In these conditions, it is not require severe immunosuppression and the life quality of the recipients are better. The heart valves serve a vital function and have limited regenerative capacity after damage, so the immune privilege in the heart is an evolutionary strategy for protecting these tissues from a systemic immune responses. Similar to immune privileged sites, very little inflammation can be tolerated in the heart valves. In fact, because heart valves cannot regenerate spontaneously, diseases involving the heart valves frequently necessitate surgical replacement without HLA/ABO matching and/or immunosuppression of the recipient with no cases of valve dysfunction or significant calcification [2].

Biography

Saeed Shahhossein-Dastjerdi is a MD-PhD. He has been trained at Queensland University of Technology (MScs) and The University of Sydney (PhD) as well as working as a Medical Doctor in Iran (2000-2008). His Master project was an investigation to produce a thick vascularized tissue by culturing bone marrow derived human mesenchymal stem cells on poly lactic acid scaffolds. His PhD project was concentrated with the ultrastructural analysis of human retinal pigment epithelium by transition electron microscopy and finding the association between embryonic development, physiological ageing and Age-Related Macular Degeneration. Since he had left Australia, he have been assigned as the director of Cell, Tissue, Organ bank in Legal Medicine Organization in Iran. The tissue donation process covering collection, storage and processing all types of tissues including bone, eye, musculoskeletal, heart valves and skin to offer the best possible solution to the other patients.