MATERIAL ENGINEERING IN CARDIOVASCULAR RECONSTRUCTION

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[ENGINEERING OF BIOMATERIALS 148 (2018) 19]

Abstract

Reconstruction of the cardiovascular system: The aim of the work is to minimize thrombus formation life threatening in the pulsatile heart assist chamber, by the use of a new biomimetic heart valve made on the basis metal-polymer composites. The heart prostheses are dedicated to support the heart of patients with late heart disease failure. They are dedicated to therapy related to self-regeneration or as a bridge for transplantation. In the future, they will be able to help treatment with gene therapy for myocardial infarction. Systems with valves mechanically generate plaque activation by shear stress. This is due to the narrow gap that is between the petal and the ring. Composite materials and a new valve design can minimize this problem. Injected polyurethane with a metallic, titanium bonded insert optimal micro-scale flexibility with macro-stiffness for ensuring appropriate mechanical functions of the valve.

Acknowledgments

The works were carried out as part of the projects: M-ERA.NET/2014/01/2016 (bioVALVE).