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A STUDY ON MYOCARDIAL TISSUE ENGINEERING

Dr Anil Kumar*

* Department of Medical,
Teerthanker Mahaveer University, Moradabad, Uttar Pradesh, INDIA
Email id: dr.netin@gmail.com

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ABSTRACT

Myocardial tissue engineering, a technique that helps to solve the barriers to extending patients' lives after a heart attack, is developing all the time. It consists of a biomaterial-based 'vehicle,' which may be either a porous scaffold or a thick patch composed of natural or synthetic polymeric materials, to facilitate cell movement into the sick area of the heart. For cell treatment and cardiac tissue engineering, a variety of cell types have been proposed. Those also include the autologous and embryonic stem cells, each with its own set of benefits and drawbacks. Biomaterials recommended for this tissue-engineering activity must be biocompatible with cardiac myocytes and have mechanical characteristics that are similar to native myocardium, allowing the supplied donor cells to integrate and stay intact in vivo. Despite the fact that considerable study is being done, many questions remain unsolved, necessitating more investigation. We address the different methods described in the area of cardiac tissue engineering in this review, concentrating on the successes of merging biomaterials and cells using various strategies to heal the infarcted region, as well as clinical trials and potential cell resources in cell therapy. Myocardial xenotransplantation, in situ engineering, and intraventricular devices are all considered as alternatives.

KEYWORDS: *Biomaterials, Cell therapy, Myocardial infarction, Scaffolds, Tissue Engineering.*

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