

Isoprenaline-induced Heart Failure Animal Model

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Abstract

Viable animal models are necessary tools when studying heart failure in terms of characterization of disease pathophysiology, target identification, and in the in vivo evaluation of novel therapeutic agents and treatments. Surgical techniques, genetic modifications, and pharmacological interventions are some approaches utilized in developing heart failure animal models. The scarce of funding and the need for specialized trained professionals to create those animal models are some of the challenges facing researchers especially in the developing countries. The present research discusses new reproducible approaches to create mouse models of heart failure that are convenient, cost-effective, time-efficient and won't bear a burden neither on the researchers nor on the research facilities. It also explored the use of different dosage forms in order to facilitate the development of heart failure in mouse models, specifically oil depots and implants. Different oil vehicles were examined in-vivo and in-vitro trials to Two implant formulations were studied, one containing chitosan and acetic acid as the main components of the implant. The other implant tested was a mixture of witpsol and beeswax which showed better results in vivo trials. The chronic changes in myocardial structure and function and the progression of heart failure and left ventricular (LV) dysfunction are quantified throughout this research paper in order to explain the specific observations found.