

Automatic Control of Cardiac Rhythm for Arrhythmia Patients* (2) In Vitro Application on Rabbit Hearts

Rasha Kamel**

Zoher Marmar***

Amal Fatani****

Abstract

The efficiency of anti-arrhythmic drugs could be weak if they were administrated in insufficient therapeutic concentrations in target tissues of the cardiac muscle. Anti-arrhythmic drugs concentrations should be high enough to reach the steady- state for the chronic arrhythmia patients, this could be fatal due to drug accumulation in the cardiac and body tissues. The most important side effect of all kind of anti-arrhythmic drugs is the capability to initiate different types of cardiac arrhythmia formations in the treated individuals. The aim of this study is to prove the effectiveness of delivering an anti-arrhythmic drug, directly to target tissues of the cardiac muscle by using the Iontophoresis concept, in order to minimize the side effects in cardiac and body tissues and optimize the benefits of anti-arrhythmic drugs in target tissues. The results from series of experimental procedures proved that very-low iontophoretic current's values ranges allow feasible and effective passage of anti-arrhythmic drug's ionized particles into cardiac tissues, and in the same time they were safe on the innervation of autonomic nervous system fibers in the cardiac muscle. This study focused on relationships among the different parameters which control the Iontophoresis procedures.

*For The paper in Arabic see pages (81-102)

**Biomedical Department, Faculty of Mechanical & Electrical Engineering, Damascus University

***Biomedical Department, Faculty of Mechanical & Electrical Engineering, Damascus University

****Department of Pharmacology, College of Pharmacy, King Saud University (KSA)

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