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Effect of Medication in a Glucose-Insulin Mathematical Model

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Abstract

Insulin is a hormone that plays a crucial role in regulating the blood glucose. It is secreted by the beta cells of the pancreas. A chronic disease, known as diabetes, occurs when there is no effective use or no enough secretion of insulin. The treatment, such as insulin injections and medicines, depends on the type of diabetes. Mathematical models have been proposed to understand the dynamics of the glucose-insulin regulatory system in different conditions. In this work, we investigate a model that describes the dynamics of the glucose and insulin concentrations with beta cells. We introduce the effect of medication in a glucose-insulin model. It is analysed a treatment with continuous medication and another with discontinuity in the drug use. We identify parameter values related to medicines that maintain the blood glucose concentration in a normal level.

Acknowledgments

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