

GlyCulator: A Glycemic Variability Calculation Tool for Continuous Glucose Monitoring Data

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Abstract

Glycemic variability has become a major concern over the years as growing evidence is gathered on its detrimental impact on the risk of diabetes complications. Glycated hemoglobin, although ubiquitous in clinical practice, does not adequately summarize short-term glycemic variability. This gap may be addressed through the use of continuous glucose monitoring, which continuously estimates glycemia based on interstitial fluid glucose concentration. As the amount of collected data is substantial, variability of the glycemic pattern can be analyzed in context of its direction, periodicity, and amplitude. As freely available variability calculation tools are limited in number and complexity, the authors have devised a simple-to-use Web-based application, "GlyCulator," allowing for rapid computation of glucose variability parameters from continuous glucose monitoring data.

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Abbreviations: (%CV) percentage coefficient of variation, (CGM) continuous glucose monitoring, (CONGA) continuous overall net glycemic action, (FD) fractal dimension, (HbA1c) glycated hemoglobin, (MAGE) mean amplitude of glycemic excursions, (MODD) mean of daily differences, (SD) standard deviation

Keywords: continuous glucose monitoring, diabetes, glycemic variability, statistical analysis

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