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DIFFERENCES BETWEEN FASTING PLASMA GLUCOSE AND POSTPRANDIAL PLASMA GLUCOSE

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Introduction: This paper describes the quantitative and qualitative differences between fasting plasma glucose (FPG) and postprandial glucose (PPG).

Method: The author has been researching type 2 diabetes (T2D) for the past eight years. He followed the three stages: collected 8,878 glucose data (7,206 PPG and 1,672 FPG) for 5 years; studied and analyzed glucose to determine their influential factors with contributing ratios; developed predicted glucose models and then calculated the predicted hemoglobin A1C value. Glucose is not only a medical indicator, but also involves lifestyle factors. Some healthcare professionals do not have a comprehensive understanding of this simple term, glucose.

Results: Table 1 shows glucose differences, analysis methods, and conclusions by using a big data analytics (~1.5 million). Most people define glucose as blood sugar level and nothing more; however, FPG and PPG are quite different because their influential factors and contribution percentages are diverse. In addition, their behaviors are different in terms of changing speed, normal peak, sensitivity etc. The prediction methodologies are also not the same. The author believes in preventive medicine including prediction of glucose and controlling T2D via lifestyle management. The better you can predict their behavior, the better chance you can reduce their damage. He has spent three years to develop five prediction models to achieve approximately 99% of linear accurac with high correlations (pattern similarity) between two biomedical signal waves, predicted and measured glucose.

Conclusion: Currently, the patient's T2D is completely under control by using his developed methodology and five AI-based prediction tools. A deep understanding and quantitative sense of FPG and PPG will benefit the task of effectively controlling diabetes.

Biography

Gerald C Hsu has received an honorable PhD in Mathematics and majored in Engineering at MIT. He has attended different universities over 17 years and studied seven academic disciplines. First, he studied six Metabolic Diseases and Food Nutrition during 2010-2013, and then conducted research during 2014-2018. His approach is math-physics and quantitative medicine based on mathematics, physics, engineering modeling; signal processing, computer science, big data analytics, statistics, machine learning, and AI. His main focus is on preventive medicine using prediction tools. He believes that the better the prediction, the more control you have.

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