Global Science Research Journals

Global Journal of Medicine and Medical Sciences

Open Access

Risk probability of having a cardiovascular disease, stroke, or renal complications using annual segmented data of glucose and metabolism index (GH Method: math-physical medicine)

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Abstract

The author describes the quantitative relationship between his risk probability of having a cardiovascular disease (CVD), stroke, or renal complications and his annual segmented data of both average daily glucose and daily metabolism index (MI) by using GH-Method: math-physical medicine. In 2014, the author applied topology concept, finite-element engineering technique, and nonlinear algebra operations to develop a mathematical metabolism model, which contains ten categories including four output categories (weight, glucose, BP, other lab-tested data including lipids and ACR) and six input categories (food, water drinking, exercise, sleep, stress, routine life patterns and safety measures). These 10 metabolic categories include approximately 500 detailed elements. He further defined a new parameter referred to as the metabolism index (MI) that has a combined score of the above metabolic categories and elements. Since 2012, he has collected and stored two million data from his own body health conditions and personal lifestyle details. He then developed a set of algorithms which include a patient's baseline data (e.g. age, race, gender, family genetic history, medical history, bad habits) and conducted three calculations: (1) Medical conditions - individual M1 through M4: i.e. obesity, diabetes, hypertension, hyperlipidemia and others; (2) Lifestyle details - individual M5 through M10; (3) MI scores - a combined score of M1 through M10. With this mathematical risk assessment model, he can obtain three separate risk probability percentages to offer a range of the risk prediction of having CVD, stroke, or renal complications resulting from metabolic disorders, unhealthy lifestyles, and their combined impact on the human body. This paper has demonstrated the strong effect of metabolism (including glucose) on CVD/stroke risk probability % by using the annually segmented MI (and glucose) data. It has also proven the solid influence of glucose on renal complications risk probability % using annually segmented glucose (and MI) data.

Biography

Gerald C Hsu received an honorable PhD in mathematics and majored in engineering at MIT. He attended different universities over 17 years and studied seven academic disciplines. He has spent ~30,000 hours in endocrinology research with an emphasis in diabetes. First, he studied six metabolic diseases and food nutrition from 2010 to 2013, then conducted his own diabetes research from 2014 to 2019. His approach is "quantitative and precision medicine" based on mathematics, physics, optical and electronics physics, engineering modeling, wave theory, energy theory, signal processing, computer science, big data analytics, statistics, machine learning, and artificial intelligence. His main focus is on preventive medicine using prediction tools. He believes that the better the prediction, the more control you have. Thus far, he has written, published and presented more than 200 medical papers.

7th International Conference on Cardiology and Cardiovascular Medicine | July 14, 2020

Citation: Gerald C Hsu, *Risk probability of having a cardiovascular disease, stroke, or renal complications using annual segmented data of glucose and metabolism index (GH Method: math-physical medicine)*, Global Cardiology Congress 2020, 7th International Conference on Cardiology and Cardiovascular Medicine, July 14, 2020, pp- 03