Gerald C Hsu, Metabolomics (Los Angel) 2018, Volume 8
DOI: 10.4172/2153-0769-C2-042

13th International Conference on

Metabolomics and Systems Biology

October 11-12, 2018 | Zurich, Switzerland

Gerald C Hsu

eclaireMD, USA

Relationship between metabolism and obesity along with type 2 diabetes and cardiovascular risk

Introduction: By using the big data on one patient (author), this clinical paper describes the relationship between the metabolism state and medical conditions, including obesity, diabetes, and cardiovascular risk.

Methodology: The obese patient was diagnosed with type 2 diabetes (T2D), hyperlipidemia, hypertension for over 25 years along with suffering five cardiac episodes during 1994-2006. The study processed ~1.5M detailed metabolic conditions and lifestyle data (2012-2018) based on a math-physical medicine approach (mathematics, physics, engineering modeling, artificial intelligence or AI), rather than the traditional biochemical medicine method. The author defined two new terms: Metabolism Index (MI) and General Health Status Unit (GHSU) to evaluate a person's overall metabolism and associated chronic diseases. The research steps are: 1. observing the patient's physical phenomena and metabolic changes, collecting relevant big data. 2. building up engineering models and deriving inter-relationship equations, applying statistics tools for variance study. 3. using machine learning and AI to predict important metabolic changes.

Results: Metabolic factors and health symptoms show some key results within eight years.

Conclusions: This math-physical medicine approach has proven the close relationship between metabolic changes quantitatively due to the improvement of lifestyle management and chronic disease conditions.

Table 1: Metabolic Factors and Health Symptoms (2010-2018)

Recent Publications

1. Hsu, Gerald C. (2018). Using Math-Physical Medicine to Control T2D via Metabolism Monitoring and Glucose Predictions. *Journal of Endocrinology and Diabetes, 1*(1), 1-6. Retrieved from http://www.kosmospublishers.com/wp-content/uploads/2018/06/JEAD-101-1.pdf
2. Hsu, Gerald C. (2018, June). Using Math-Physical Medicine to Analyze Metabolism and Improve Health Conditions. Video presented at the meeting of the 3rd International Conference on Endocrinology and Metabolic Syndrome 2018, Amsterdam, Netherlands.

3. Hsu, Gerald C. (2018). Using Signal Processing Techniques to Predict PPG for T2D. *International Journal of Diabetes & Metabolic Disorders,* 3(2),1-3. Retrieved from https://www.opastonline.com/wp-content/uploads/2018/06/using-signal-processing-techniques-to-predict-ppg-for-t2d-ijdmd-18.pdf

4. Hsu, Gerald C. (2018). Using Math-Physical Medicine and Artificial Intelligence Technology to Manage Lifestyle and Control Metabolic Conditions of T2D. *International Journal of Diabetes & Its Complications,* 2(3),1-7. Retrieved from http://cmepub.com/pdfs/using-mathphysical-medicine-and-artificial-intelligence-technology-to-manage-lifestyle-and-control-metabolic-conditions-of-t2d-412.pdf.

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 20,000 hours in T2D research. First, he studied six metabolic diseases and food nutrition during 2010-2013, 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. The author has not received any financial assistance from any organization.

g.hsu@eclaireMD.com

Notes: