The GH-Method

Using GH-Method: Math-Physical Medicine and Energy Theory to Investigate Metabolism Balance, Diabetes Control, and Risk Reduction of Complications (No. 035)

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Abbreviations: FPG: fasting plasma glucose; PPG: postprandial plasma glucose; T2D: type 2 diabetes

1. INTRODUCTION

The author employs "math-physical medicine" as an alternative to traditional "bio-chemical medicine" to investigate energy imbalances leading to metabolic disorders, chronic diseases, and their complications.

2. METHODS

The author utilized energy theory to examine the disparity between energy intake (food and water) and energy expenditure (exercise, work, and activities). These energy imbalances result from poor lifestyle management and manifest as metabolic disorders affecting body weight, glucose levels, blood pressure, and lipids. In 2014, employing advanced mathematical topology and the finite element method from engineering, the author developed a mathematical metabolism model with 10 categories and approximately 500 elements.

Between 2015 and 2017, the author further developed a postprandial plasma glucose (PPG) prediction model, integrating optical physics at the front-end and signal processing at the back-end. In the same period, a fasting plasma glucose (FPG) prediction model was developed using energy theory and various statistical techniques (time-domain, spatial analysis, frequency-domain). Finally, big data analytics, machine learning, and artificial intelligence were also used to process and analyze data from approximately 1.5 million lifestyle management and chronic disease-related data points, particularly focusing on type 2 diabetes (T2D) and its complications.

3. RESULTS

The energy theory and statistical analyses revealed an 83% correlation between FPG and body weight, with body weight representing a significant aspect of the body's internal energy exchange. Both the FPG and PPG prediction models achieved an impressive 99.9% prediction accuracy. It was also observed that body weight contributed to approximately 85% of FPG formation, and the combination of carbohydrate/sugar intake and post-meal exercise levels contributed to about 80% of PPG formation.

Additionally, by applying concepts from hemodynamics and solid mechanics to model artery rupture and fluid dynamics to model artery blockage, the author calculated a reduced risk of developing heart attacks (CVD) or strokes, decreasing from a 74% risk in 2000 to 31% in 2018. The author's CVD risk reached as low as 26.4% in 2017, a figure comparable to the 26.7% results from the Framingham Studies. Using similar modeling techniques, the author calculated his reduced risk of developing chronic kidney diseases, from 69% in 2010 to 35% in 2018.

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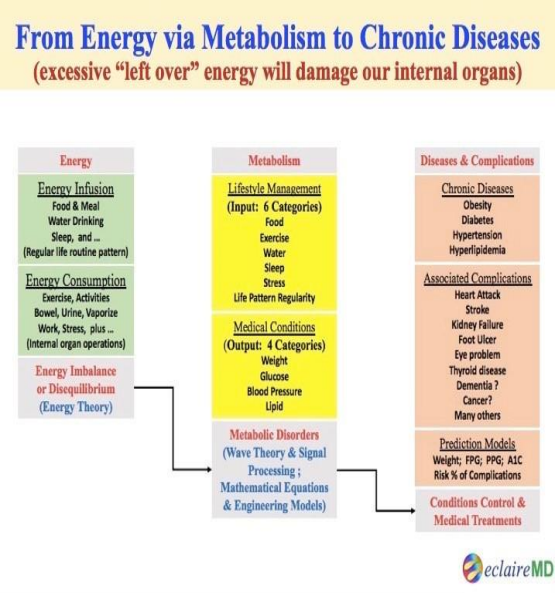
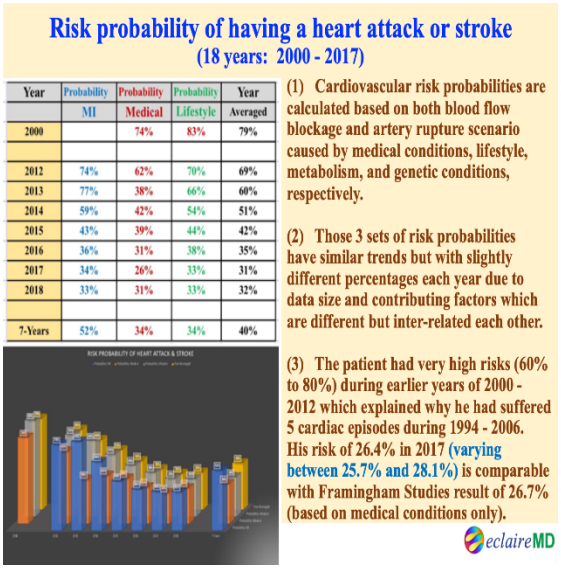
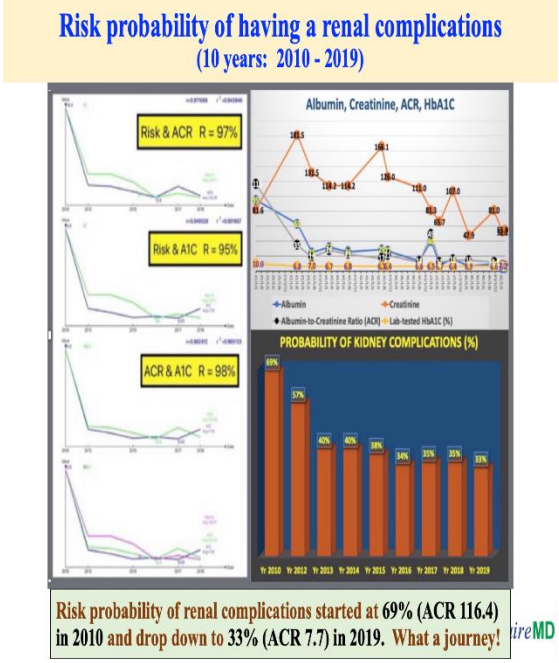




Year	Probability MI	Probability Medical	Probability Lifestyle	Year Averaged
2000		74%	83%	79%
2012	74%	62%	70%	69%
2013	77%	38%	66%	60%
2014	59%	42%	54%	51%
2015	43%	39%	44%	42%
2016	36%	31%	38%	35%
2017	34%	26%	33%	31%
2018	33%	31%	33%	32%
7-Years	52%	34%	34%	40%



4. CONCLUSION

Through the application of energy theory, the author has quantitatively demonstrated that excessive food nutrition intake coupled with insufficient energy expenditure, such as physical inactivity, can lead to an accumulation of surplus energy stored in the form of glucose within the human body. This unnecessary surplus energy, circulating with red blood cells in the bloodstream, can lead to different metabolic disorders, subsequently triggering chronic diseases and various medical complications.

