The GH-Method

Can a Type 2 Diabetes Patient's Medical Conditions be Impacted by COVID Vaccines? A Case Study with Real Data and Quantitative Proof of 4 Selected Biomarkers Before and After Receiving COVID mRNA Vaccines Based on GH-Method: Math-Physical Medicine (No. 832)

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Abstract

The COVID epidemic impacted the world from late 2019 to early 2020. Research has found that the COVID-19 virus primarily affects the lungs and that other organs can be injured by it as well. Scientists have seen that most of the damage was concentrated on the heart, lungs, and brain, including the heart muscle, scar tissue in the lungs, and strokes and seizures. Some people, especially those who had severe COVID-19, experience multi-organ effects or autoimmune conditions with symptoms lasting weeks, months, or even years after contracting COVID-19 illness. Multi-organ effects can involve many body systems, including the heart, lungs, kidneys, skin, and brain. From WHO report, globally, as of April 6, 2023, there have been 762,201,169 confirmed cases of COVID-19, including 6,893,190 deaths (~0.9%) reported to WHO. As of April 4, 2023, a total of 13,337,398,544 vaccine doses have been administered. Worldwide, different COVID vaccines, especially Moderna and Pfizer, were delivered to the population in early 2021. Both of these mRNA vaccines available in the US are highly effective against severe COVID-19, but recent studies suggest that Moderna's elicits a stronger immune response and might be better at preventing breakthrough infections. According to the Article: "Long-term Side Effects of COVID-19 Vaccine? What We Know." Published on Feb 04, 2021: "Since COVID-19 vaccines are new, some people have asked about their effects on those who take them. Short-term side effects (i.e., those that happen in the days after a vaccine has been given) are readily apparent because of clinical trial reports and personal experiences, but people also wonder about the possible long-term effects of these vaccines. To answer this question, scientists study the available evidence, and while the rules of science do not allow scientists to say that long-term effects can never happen, the evidence is strong that these vaccines will not cause long-term harm." Nevertheless, there are still numerous news or stories flooding the Internet space. The author does not have sufficient background and a suitable position to argue with those statements or viewpoints. However, as an individual with severe type 2 diabetes (T2D) for 28 years, he has wondered for the past ~3.5 years of the pandemic period: Is there any residual or left-over effect from COVID vaccines on his T2D conditions? This article presents some answers with relatively solid evidence regarding this question. Although this is only one person's data, he hopes it still can present some affirmation about the possible answers to his question. The author escaped from SARS 1 in 2003 by leaving Beijing and Taipei quickly and then stayed in Hawaii without traveling back to Asia the following year. Therefore, he knew the seriousness and high death threats of the SARS pandemic. He was traveling in East Asia when the Wuhan pneumonia (COVID-19) news broke out in central China in December 2019. He then decided to leave Asia immediately and returned to the US. He started his self-quarantined life on January 18, 2020. He had his first two shots of Moderna vaccines in February-March 2021 and then finished his 4th vaccine in September 2022. Based on the above description, the author has divided his life during the recent pandemic period into two equal-length sub-periods which have about 19 months for each one. The first "prior-vaccine" period started on 8/1/2018 and ended on 2/15/2021. The second "post-vaccine" period started on 2/16/2021 and ended on 9/30/2022. Within each period, he selected 4 specific sets of his collected data regarding his T2D conditions and overall health conditions. The first dataset is his body weight (BW) in the early morning which affects his fasting plasma glucose (FPG) level greatly (~90% correlation between BW and FPG). The early morning FPG value can be further interpreted as his health status of pancreatic beta cells insulin capacity and quality. The second dataset is his daily estimated average glucose (eAG) level which is the average glucose of his 96 continuous glucose

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monitoring sensor device collected glucose. The third dataset is his averaged daily medical conditions (MC) of 4 metabolic disorders, obesity (via BW), diabetes (via eAG), hypertension (via blood pressure), and hyperlipidemia (via blood lipids). The fourth dataset is his daily metabolism index (MI) values which include the above-mentioned 4 medical conditions (MC) and another 6 lifestyle details (LD) of food (quantity and quality), exercise, water drinking amount, sleep score, stress score, and daily life routines. He has not used any specific research method for this study other than the simple time-domain curves using statistical 90-days moving average value (easier for viewing the curve pattern and trend). In summary, there are 4 comparison findings from this particular research methodology article: (1) For body weight (BW), pre-vaccine period = 171 lbs; post-vaccine period = 169 lb., with a 2 lb. or 1% difference. (2) For daily glucose (eAG), pre-vaccine period = 125 mg/dL; post-vaccine period = 109 mg/dL, with 16 mg/dL or 13% difference. (3) For an average of 4 medical conditions (MC), the pre-vaccine period = 85.5%; the post-vaccine period = 83.9%, with a 1.6 or 1.9% difference. (4) For an average of 10 metabolism index (MI), pre-vaccine period = 55.9%; post-vaccine period = 53.0%, with a 2.9 or 5.2% difference. In conclusion, all comparison results of 4 biomarkers have shown noticeable improvements during the post-vaccine period. These improvements are mainly resulted from his continuous effort on lifestyle management. By the way, thus far, he has not infected by COVID virus. This also proves that, for himself as a T2D patient, the COVID vaccines have brought no obvious impact on his diabetes and overall health conditions.

Keywords: Type 2 diabetes; COVID-19; Vaccines; Body weight; Fasting plasma glucose

Abbreviations: T2D: type 2 diabetes; FPG: fasting plasma glucose; MPM: math-physical medicine; MI: metabolism index; BW: body weight; MC: medical conditions

1. INTRODUCTION

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Nevertheless, there are still numerous news or stories flooding the Internet space. The author does not have sufficient background and a suitable position to argue with those statements or viewpoints. However, as an individual with severe type 2 diabetes (T2D) for 28 years, he has wondered for the past ~3.5 years of the pandemic period: Is there any residual or left-over effect from COVID vaccines on his T2D conditions?

This article presents some answers with relatively solid evidence regarding this question. Although this is only one person's data, he hopes it still can present some affirmation about the possible answers to his question.

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The second dataset is his daily estimated average glucose (eAG) level which is the average glucose of his 96 continuous glucose monitoring sensor device collected glucose.

The third dataset is his averaged daily medical conditions (MC) of 4 metabolic disorders, obesity (via BW), diabetes (via eAG), hypertension (via blood pressure), and hyperlipidemia (via blood lipids).

The fourth dataset is his daily metabolism index (MI) values which include the above-mentioned 4 medical conditions (MC) and another 6 lifestyle details (LD) of food (quantity and quality), exercise, water drinking amount, sleep score, stress score, and daily life routines.

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2. METHODS

2.1 MPM background

To learn more about his developed GH-Method: math-physical medicine (MPM) methodology, readers can read the following three papers selected from his published 760+ papers.

The first paper, No. 386[1] describes his MPM methodology in a general conceptual format. The second paper, No. 387[2] outlines the history of his personalized diabetes research, various application tools, and the differences between the biochemical medicine (BCM) approach versus the MPM approach. The third paper, No. 397[3] depicts a general flow diagram containing ~10 key MPM research methods and different tools.

2.2 The author's diabetes history

The author was a severe T2D patient since 1995. He weighed 220 lb. (100 kg) at that time. By 2010, he still weighed 198 lb. with average daily glucose of 250 mg/dL (HbA1C at 10%). During that year, his triglycerides reached 1161 (high risk for CVD and stroke) and his albumin-creatinine ratio (ACR) at 116 (high risk for chronic kidney disease). He also suffered from five cardiac episodes within a decade. In 2010, three independent physicians warned him regarding the need for kidney dialysis treatment and the future high risk of dying from his severe diabetic complications.

In 2010, he decided to self-study endocrinology with an emphasis on diabetes and food nutrition. He spent the entire year of 2014 developing a metabolism index (MI) mathematical model. During 2015 and 2016, he developed four mathematical prediction models related to diabetes conditions: weight, PPG, fasting plasma glucose (FPG), and HbA1C (A1C). Through using his developed mathematical metabolism index (MI) model and the other four glucose prediction tools, by the end of 2016, his weight was reduced from 220 lbs. (100 kg) to 176 lbs. (89 kg), waistline from 44 inches (112 cm) to 33 inches (84 cm), average finger-piercing glucose from 250 mg/dL to 120 mg/dL, and A1C from 10% to ~6.5%. One of his major accomplishments is that he has no longer taken any diabetes-related medications since 12/8/2015.

In 2017, he achieved excellent results on all fronts, especially his glucose control. However, during the pre-COVID period, including both 2018 and 2019, he traveled to ~50 international cities to attend 65+ medical conferences and made ~120 oral presentations. This hectic schedule inflicted damage to his diabetes control caused by stress, dining out frequently, post-meal exercise disruption, and jet lag, along with the overall negative metabolic impact from the irregular life patterns; therefore, his glucose control was somewhat affected during the two-year traveling period of 2018-2019.

He started his COVID-19 self-quarantined life on 1/19/2020. By 10/16/2022, his weight was further reduced to ~164 lbs. (BMI 24.22) and his A1C was at 6.0% without any medication intervention or insulin injection. In fact, with the special COVID-19 quarantine lifestyle since early 2020, not only has he written and published ~500 new research articles in various medical and engineering journals, but he has also achieved his best health conditions for the past 27 years. These achievements have resulted from his non-traveling, low-stress, and regular daily life routines. Of course, his in-depth knowledge of chronic diseases, sufficient practical lifestyle management experiences, and his developed high-tech

tools have also contributed to his excellent health improvements.

On 5/5/2018, he applied a continuous glucose monitoring (CGM) sensor device on his upper arm and checks his glucose measurements every 5 minutes for a total of 288 times each day. Furthermore, he extracted the 5-minute intervals from every 15-minute interval for a total of 96 glucose data each day stored in his computer software.

Through the author's medical research work of over 40,000 hours and reading over 4,000 published medical papers online in the past 13 years, he discovered and became convinced that good life habits of not smoking, moderate or no alcohol intake, avoiding illicit drugs; along with eating the right food with well-balanced nutrition, persistent exercise, having a sufficient and good quality of sleep, reducing all kinds of unnecessary stress, maintaining a regular daily life routine contribute to the risk reduction of having many diseases, including CVD, stroke, kidney problems, micro blood vessels issues, peripheral nervous system problems, and even cancers and dementia. In addition, a long-term healthy lifestyle can even "repair" some damaged internal organs, with different required time-length depending on the particular organ's cell lifespan. For example, he has "self-repaired" about 35% of his damaged pancreatic beta cells during the past 10 years.

3. RESULTS

Figure 1 shows 4 comparison charts of BW, eAG, MC, and MI.

4. CONCLUSION

In summary, there are 4 comparison findings from this particular research methodology article:

(1) For body weight (BW), pre-vaccine period = 171 lbs; post-vaccine period = 169 lb., with a 2 lb. or 1% difference.

(2) For daily glucose (eAG), pre-vaccine period = 125 mg/dL; post-vaccine period = 109 mg/dL, with 16 mg/dL or 13% difference.

(3) For an average of 4 medical conditions (MC), the pre-vaccine period = 85.5%; the post-vaccine period = 83.9%, with a 1.6 or 1.9% difference.

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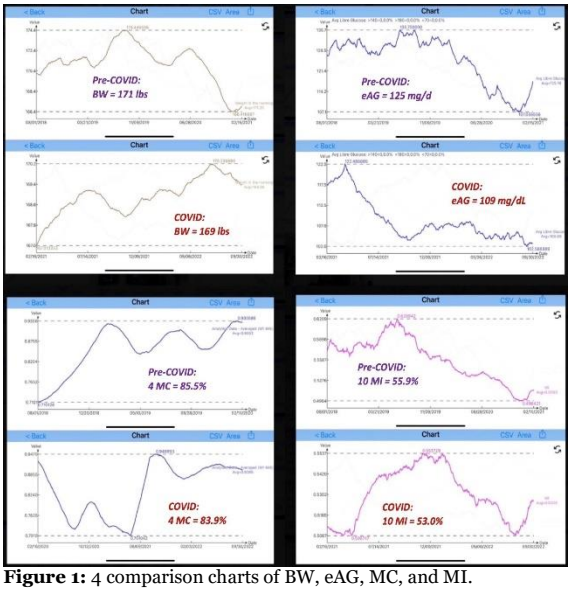

Figure 1: 4 comparison charts of BW, eAG, MC, and MI.

In conclusion, all comparison results of 4 biomarkers have shown noticeable improvements during the post-vaccine period. These improvements are mainly resulted from his continuous effort on lifestyle management. By the way, thus far, he has not infected by COVID virus. This also proves that, for himself as a T2D patient, the COVID vaccines have brought no obvious impact on his diabetes and overall health conditions.

5. REFERENCES

For editing purposes, the majority of the references in this paper, which are self-references, have been removed. Only references from other authors' published sources remain. The bibliography of the author's original self-references can be viewed at www.eclairemd.com.

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three published special editions from the following three specific journals:

(1) Special Issue. The GH-Method.

(2) Journal of Applied Material Science & Engineering Research.

(3) Advances in Bioengineering and Biomedical Science Research.

