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Review Article

Better Alternatives for Human RNA-type Respiratory Viruses Vaccines: A Systematic Review

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Abstract

Vaccinations protected millions of people's lives in the past two centuries. This does not necessarily mean there are successful vaccines for all pathogenic microbes. Up to date, there are numerous risky viruses without protective vaccines despite huge efforts to produce such powerful effective vaccines. Most RNA viruses such as HIV, Ebola, Zika, Dengue, and almost all human RNA-type respiratory viruses have no available effective vaccines. Vaccines work specifically by stimulation of adaptive immune response, which fails immediately after emerging new variants because of the production of undetectable and non-recognizable antigenic determinants of the newly generated variants, mutants, or strains. Therefore, the best way to defeat these mutated viruses is by boosting innate immune response, which works in a non-specific way to combat all viruses plus their variants. Potentiation of innate immunity can be achieved by eating garlic daily plus other healthy immune-stimulant food as well as maintaining healthy tips listed by author papers [1,2], which included drinking water continuously, cessation of drinking alcohol, having enough sleep, avoiding stress, exercising, avoiding smoking (arguable in case of COVID-19), smile and laughter, being optimistic and relaxing while hearing music to build up a robust shield against any invading pathogenic virus or microbe.

Keywords: Human RNA-type respiratory viruses; Innate immunity; Alternatives to vaccines; Garlic; Biased science.

Introduction

Respiratory viruses are a list of the most problematic infectious highly contagious causes of common cold or flu in a large scale of outbreaks, epidemics, and even pandemics in most communities as worldwide-spreading microbes. Respiratory viruses are mainly divided into two major categories; RNA

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viruses which include influenza viruses (Orthomyxoviridae), respiratory syncytial viruses (RSV), parainfluenza viruses and metapneumoviruses (Paramyxoviridae), rhinoviruses (Picornaviridae), coronaviruses (Coronaviridae); DNA viruses are the second category, which includes adenoviruses (Adenoviridae), and bocaviruses (Parvoviridae) as described in the literature, which is classified as airborne transmitted diseases very hard to be controlled [3-7].

Respiratory DNA viruses (adeno- and boca-viruses) in humans are relatively stable with less mutation rate [8-14]. On the other hand, mutation rate in RNA respiratory viruses is extremely high which produces new variants, mutants, or strains that do not share similar immune responses against them (no cross-immunity), which makes vaccines useless against them or at least vaccines must be updated continuously in concomitant with any emergent new strain which is non-practical, costly and even not realistic and that is why human beings keep fighting flu or common cold every year forever even with the availability of vaccines [15-21].

This article is written as a response to tremendous voices who accused any anti-mandatory COVID-19 vaccination as a conspiracy theorist. Because author was listed on top 20 of those conspiracy theorists (see https://tinfoilawards.com/2022-tin-foil-championship/), the author has decided to prove with evidence-based medicine that even some top scientific journals are possibly biased. The world is going mad because of recent biased one-sided publications, which served certain ideas and thoughts but ignored opposite opinion(s). In this article, there are many correct but neglected ideas about vaccines that have nothing related to conspiracy theories.

Methodology

The quality of references listed in this article is cited from top leading medical journals and highly reputable publishers in the field of clinical studies such as (alphabetically sorted); BMJ, Clinical Infectious Diseases, Clinical Microbiology and Infection, Clinical Reviews in Allergy and Immunology, Clinical Translational Medicine, Expert Review of Respiratory Medicine, European Journal of Clinical Microbiology and Infectious Diseases, Japanese Journal of Infectious Diseases, JAMA, Journal of Clinical Virology, New England Journal of Medicine, The Journal of Infectious Diseases, The Lancet etc. These all scanned for scientific clues to support the clinical ideas of the author.

Academic references listed in this article are cited from renowned journals in the fields of virology and immunology included (alphabetically sorted); Archives of Virology, BMC Biology, Brain, Behavior, and Immunity, Cell Systems, Current Opinion in Immunology, Current Opinion in Virology, EMBO Molecular Medicine, European Journal of Immunology, Frontiers in Cellular and Infection Microbiology, Frontiers in Immunology, Frontiers in Microbiology, Journal of Medical Virology, Journal of Microbiology, Immunology, Infection, Molecular Immunology, Nature, Pathogens, PloS one, Reviews in Medical Virology, Science, Trends in Microbiology, Vaccine, Viruses etc. These all scanned for further supporting academic and lab-based evidence

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that boosts the ideas of the author. Author ideology is not an anti-vaccine, but against mandatory vaccinations, which are neither scientifically justified nor at least possess robust convincing evidence.

All scanned references in this article were surveyed up to the end of December 2021. Insertion of references in this article was done electronically by using citation manager "EndNote" referencing software version X9.1.

Vaccines versus viral infections

Vaccines saved lives of millions and stopped the distribution of fatal microbes for decades of years and this is an authentic none-denied fact [22-25]. However, this never means that all diseases can be stopped or at least reduced their harmful effect or even lessened the cost of treatment by comparison of vaccinations, i.e., "benefits outweigh risks". Some examples, but not all of them, of viral infectious diseases (with a focus on RNA viruses) from medical archives included the failure of vaccinations against human immunodeficiency virus (HIV) despite huge efforts and funds spent for more than 30 years [26-29].

Next example is the Ebola virus, an arthropods' borne virus, which caused hemorrhagic fever leading to the death of millions in Africa where the mortality rate was around 40% but some deadly outbreaks recorded 65%, while it reached approximately 90% in Zaire [30-32]. So many clinical trials were done to prevent the spread of this fatal disease, which is causing a real catastrophic dilemma and a serious threat to human beings, but none of these trials was successful [33,34]. A newly published article by the US National Institute of Health (NIH) might be promising, but nothing is guaranteed [35], which revealed a huge fund spent (17.2 billion USD) to boost research supporting the use of new technologies in the field of viral vaccines over the past two decades including Coronavirus, Zika, Ebola, and dengue (all of them are RNA viruses causing serious outbreaks without successful vaccines).

Low efficacy of human RNA-type respiratory viruses vaccines

Vaccinations against human RNA-type respiratory viruses had a poor impact and low efficacy on preventing flu and common cold. Here are some examples of the above statement. Rhinovirus is responsible for most common cold human cases, which affects upper respiratory tract and still infect people despite available non-protective vaccines [36-38]. Scientists started to think about therapeutic measurements rather than preventive measurements that focused on low efficacy vaccines [39,40].

Respiratory syncytial virus (RSV) is the most challenging respiratory viral infection in pediatrics causing serious outbreaks in nurseries and primary schools as well as any children gathering places worldwide [41-43]. To date, there is no available effective vaccine or if available, it showed low efficacy against this dangerous virus [44-46].

Parainfluenza viruses and metapneumo-viruses are the causative agents of lower respiratory tract infections in humans causing severe acute pneumonia in all age groups [47-50]. Host immunological response and molecular biology of the virus were studied

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for both viruses, but no effective vaccine candidate was prepared for humans [51-55].

Influenza viruses (Orthomyxoviruses type A and B) are the most challenging infectious highly contagious respiratory attack that came as outbreaks, epidemics, and even pandemics before the era of COVID-19 pandemic. Flu jab was developed before about 8 decades according to CDC https://www.cdc.gov/flu/pandemic-resources/pandemic-timeline-1930-and-beyond.htm. People are still grabbing flu even though with flu jab every year which pushed scientists to minimize the clinical importance of flu jab [56]. Australians rejected flu jab for healthy kids under 5 years old [57]. Influenza vaccines were still less effective for children [58].

All above respiratory viruses were ignored as potential causes of respiratory infections during COVID-19 pandemic, was it an accident? Or was there something wrong with diagnostic procedures? [59]. Not to talk about a very long list of bacterial causes of pneumonia [60-62].

Coronaviruses are also a group of respiratory RNA viruses of veterinary importance and are known as zoonotic viruses transmitted from animals to humans causing flu-like symptoms and common cold [63]. Severe Acute Respiratory Syndrome (SARS) and Middle East Respiratory Syndrome (MERS) are respiratory infectious diseases in humans caused by SARS-CoV and MERS-CoV viruses both spread as outbreaks in some Asian countries in 2004 and 2012, but both ended without vaccination [64-67]. SARS-CoV-2 is one of coronaviruses that caused COVID-19 pandemic which seems to have the same biological properties as the above viruses plus it elicited the same host immune response [68]. COVID-19 has a higher morbidity rate, but less mortality rate than SARS and MERS [18,65,67].

Role of new technology in COVID-19 vaccines

As mentioned above, SARS-CoV-2 goes under and follows the same scenario of the above respiratory viral infections. High mutation rate produces new variants, mutants, and strains resistant to vaccines, which make vaccines useless, i.e., no cross-immunity [69-73].

The invention of a new technology of vaccines (mRNA vaccines) would do nothing with this unstable highly mutated virus. A call for a third dose of mRNA vaccines tells that the previous two doses did not provide enough protection against whatsoever strain or variant of SARS-CoV-2 regardless of health status, age group, gender, or environmental circumstances whether that was reported in hot or cold areas around the globe [74-78].

Besides, it is not only the low efficacy and short-term effectiveness of these vaccines, but recipients of COVID-19 vaccines also reported many adverse effects and deaths. The newest and unique one is blood clots and coagulations which have been reported for the first time in the history of vaccination since the date of its discovery. This is reported with people vaccinated with Oxford/AstraZeneca plus Johnson and Johnson [79-84]. Both Pfizer-BioNTech and Moderna vaccines caused thrombosis [85-87].

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All COVID-19 vaccines elicited vaccine-induced immune thrombotic thrombocytopenia (VITT) [86,88-90]. The worse scenario is that blood clots were reported in vaccinated children [91].

Better alternatives for vaccination against human RNA-type respiratory viruses

Immunity has two arms: innate and adaptive [92]. Vaccines induce adaptive immunity [93], which is represented by humoral immunity where specific antibodies (IgG) are produced at high titers or cell-mediated immunity represented by T lymphocytes, mainly cytotoxic T cells (also known as CD8+T cells), the most dominant anti-viral cell type.

This type of immunity "adaptive" is specific, which fails once a new variant emerges due to the production of new antigenic determinants that are not recognized or detected by memory cells in this type of specific immunity [72]. This renders vaccines useless and worthless. In contrast, what about the role of innate immunity in the fight against COVID-19 as a recent example of respiratory RNA viruses? [94]

Because of emerging new variants, innate immunity is the key to all protection possibilities against human RNA-type respiratory viruses and any other pathogenic microbe. Innate immunity works in a non-specific way [95], which means it can deal successfully with all types of viruses plus their variants. Moreover, innate immunity is the first frontline in combating all microbes, but not only respiratory RNA viruses. The question is how to build up potent innate immunity to create a natural defending shield against any invading microbe?

Eating healthy food especially garlic is classified as a potent immuno-stimulant element, which drives the body to build up strong innate immunity [2], i.e., a garlic a day keeps viruses away. Garlic is not only for prophylaxis but was used for the successful treatment of COVID-19 [96]. A few tips, besides good nutrition, if done and maintained properly would boost innate immunity; these include drinking water continuously, cessation of drinking alcohol, having enough sleep, avoiding stress, exercising, avoiding smoking (arguable in case of COVID-19), smiling, and laughter, being optimistic and relaxing while hearing music [1].

During COVID-19 pandemic, about 80% of cases tested positive to SARS-CoV-2 after samples surveyed by RT-PCR but they were asymptomatic (without clinical symptoms) [97], plus some recovered from mild or moderate infection without developing any titer of antibodies (IgM and/or IgG) [98]. The question here is why many recovered asymptomatic, mild and some moderate patients did not show antibodies' titers of IgG in their blood after being subjected to serological testing (ELISA). The most persuasive interpretation for this phenomenon is that they possessed a strong innate immune response represented by the activity of certain cells such as macrophages, NK cells [99-101], neutralizing antibodies (IgA) [102,103], complement system, and certain activity of any anti-viral cytokines such as type 1 interferon or gamma interferon [104,105] and other known elements of innate

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immunity, which dealt with the virus properly and efficiently without shifting towards adaptive immunity, thus IgG was negative in their serum [98,106,107].

Conclusions

Vaccines saved lives over decades of years, but this never means that every viral infection requires a vaccination program. So many dangerous infectious viruses are still life-threatening without effective or protective vaccines such as most human RNA viruses, for example, HIV, Ebola, Zika, Dengue, and almost most human RNA-type respiratory viruses. Relying on adaptive immunity, on which vaccines depend, is not always successful, even when using modern technology (mRNA vaccines). Innate immunity is the key to preventing human RNA-type respiratory viruses as well as any invading virus or microbe. Innate immunity can be boosted to form a protective shield by eating healthy food with a focus on the daily ingestion of garlic. Ingestion of some more types of immuno-fortified food plus doing helpful and useful tips mentioned by Mahmood's previous publications [1,2] improves the efficiency of innate immunity to build up a robust shield against invading virus or another microbe.

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Conflict of interest

The author declares no Conflict of interest.

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