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Review of COVID-19 Vaccines and the Risk of Chronic Adverse Events Including Neurological Degeneration

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ABSTRACT

Many have argued that the outbreak of COVID-19 is the result of the release of a viral based bioweapon. Vaccines to COVID-19 have been developed and a policy of universal immunization has been initiated with total disregard to the fact that the virus may be a bioweapon. The potential risk of a catastrophe exists in part because all the vaccines contain the spike protein and or the mRNA/DNA encoding for the COVID-19 associated spike protein. These vaccines were designed and placed on the market with little knowledge of how the spike protein or its nucleic acid causes disease and without knowledge of long-term adverse effects of the vaccines. This paper reviews many of the potential long-term risks that could result from receiving one of the COVID-19 vaccines. The potential for the spike protein and its mRNA to cause prion disease is reviewed as well as reasons why the vaccine could be much more dangerous than the natural infection. Adenoviral derived COVID-19 vaccines are particularly risky because of their potential to recombine with human DNA or viruses already in the human recipient. The result could be new infectious adenoviral species containing spike proteins that could infect humans and farm animals used for food. Some of the COVID-19 vaccines utilize novel technology including nanotechnology and novel adjuvants that increase intracellular penetration of cells and can potentially exacerbate chronic toxicity from the spike protein. Governments should consider suspending sale of the COVID-19 vaccines until they have a better understanding of their risks.

Keywords
COVID-19, Immunization, Vaccines, Bioweapon.

Introduction
Use of all pharmaceuticals, including vaccines, is associated with acute and long term/chronic risks. The acute risk of immunization against COVID-19 has been studied by others. Data from clinical trials and case reports sent to databases like the VAERs database in the USA have been analyzed to estimate the acute risk of immunization against COVID-19. Unfortunately, there is insufficient data, because immunization started so recently, to estimate the long term/chronic risk of immunization against COVID-19.

Vaccines have been found to cause a host of chronic, late developing, adverse events. Some adverse events including type 1 diabetes may not occur until 3-4 years after a vaccine is administered [1]. In the example of type 1 diabetes, the frequency of cases of vaccine induced type 1 diabetes can surpass the frequency of cases of severe infectious disease the vaccine was designed to prevent. Given that type 1 diabetes is only one of many immune mediated diseases potentially caused by vaccines, chronic late occurring adverse events are a serious public health issue. Vaccines for COVID-19, like other vaccines, have the potential to induce autoimmune diseases, such as type 1 diabetes, as well as the opposing condition metabolic syndrome.

There is an old saying in medicine that "the cure may be worse than the disease." The phrase can be applied to vaccines. In the current paper the concern is raised that the COVID-19 specific vaccines have the potential to cause more disease than the epidemic of COVID-19. This paper focuses on a novel potential

adverse event mechanism causing prion disease which could be even more common and debilitating than the COVID-19 infection the vaccines were designed to prevent.

COVID-19 vaccines can potentially induce catastrophic novel chronic adverse events because they contain or induce production of spike protein, an alleged bioweapon. Modulations related to the spike protein including mRNA sequence changes, amino acid sequence changes, rout of entry, amount received, coadministration with adjuvants or other excipients, and placing the spike protein in other viruses (adenovirus vaccine vectors) could create chronic disease more severe and or more common than with the natural COVID-19 infection. There is also risk of shedding of the adenovirus based COVID-19 vaccine and the potential for contamination of animals in the food supply. All of these potential risks, which are elaborated below, suggests that marketing/ regulatory approval of the COVID-19 specific vaccines was premature.

Protein Based Vaccines for COVID-19

Risk of autoimmunity

One method of immunization against COVID-19 involves injection of purified genetically engineered spike protein into the recipient in order to induce an immune response against the virus. There are several long-term risks associated with this approach. The spike protein found in these vaccines may induce autoimmune disease. One author has found amino acid sequences coded by the spike protein to be identical to sequences in human proteins including proteins found in the CNS [2]. The identification of amino acid sequence homology between viral/vaccine antigens with self-proteins helps explain the rise in autoantibodies in patients recovering from COVID-19 infections [3]. Vaccines against group A beta hemolytic streptococcus have failed because historically they induced the same autoimmune disease as the wild type infection. Autoimmunity can also be induced by epitope spreading when a foreign antigen, like the spike protein, is presented by an antigen presenting cell that also has self-molecules attached to its MHC molecules.

Risk of prion disease

COVID-19 vaccines containing spike proteins are concerning because of the potential for the spike proteins to cause prion disease. Tetz and Tetz [4] have reported that the spike protein from the virus that causes COVID-19 has prion regions that are not found in the spike proteins from other coronaviruses. Theoretically the spike protein can induce the formation of other prion molecules. A separate group [5] showed that the spike protein binding site binds "to a number of aggregation-prone, heparin binding proteins including Aβ, α-synuclein, tau, prion, and TDP 43 RRM. These interactions suggests that the heparin-binding site on the S1 protein might assist the binding of amyloid proteins to the viral surface and thus could initiate aggregation of these proteins and finally leads to neurodegeneration in brain." The spike protein in the vaccine can bind angiotensin converting enzyme 2 (ACE2), a zinc containing enzyme [6]. This interaction has the potential to increase intracellular zinc. Zinc ions have been shown to cause the transformation of TDP-43 to its pathologic prion configuration [7]. The folding of TDP-43 and FUS into their pathologic prion confirmations is known to cause ALS, frontotemporal lobar degeneration, Alzheimer's disease and other neurological degenerative diseases [8].

Many believe the outbreak of COVID-19 is the result of the release of a viral bioweapon. It is more than just possible that the novel spike protein and its nucleic acid sequence are actually complex weapons. This is a concern because all approved COVID-19 vaccines either contain or code for a spike protein. The vaccines generally incorporate small changes in the spike protein amino acid sequence or its mRNA sequence. It is not known if these changes could induce more chronic disease including prion disease than the wild type spike protein. Because the vaccines were all created before the risk of the spike proteins was known it is doubtful this concern was addressed before development and marketing of the vaccines.

Nanotechnology and the risk of blood brain barrier penetration

Another risk of the protein-based vaccines is they use relatively novel nanotechnology. The small nanoparticles that comprise some of the new purified spike protein COVID-19 vaccines have an increased potential to cross the blood brain barrier. The blood brain barrier excludes particles that are too large. Nanotechnology has been used in the past to successfully get drugs across the blood brain barrier as referenced below. The concern is the nanotechnology used in the vaccines may increase spike protein penetration into the brain which could then lead to chronic neurological damage.

The endothelial cells of the brain express ACE-2 (angiotensin converting enzyme-2), the receptor for the spike protein, leading some to believe that this could allow virus or the spike protein alone to cross the blood brain barrier [9]. ACE-2 is however not the only receptor that can potentially transport spike protein across the blood brain barrier. Apolipoprotein E (APOE) molecules have also been discussed as possible transport proteins as well. A large British study found the biggest risk factor for fatal COVID-19 infections is preexisting dementia [10]. The same group further identified the gene for APOE4, in the absence of dementia, as a leading risk factor for fatal COVID-19 infections [11]. The APOE4 gene is the gene associated with the greatest risk of developing Alzheimer's disease. A separate group [12] using cell cultures found that neuronal cells containing APOE4 on their surface, as compared to other variants such as APOE3, were more likely to be infected with the virus that causes COVID-19. These observations are further supported by earlier experiments using APOE molecules to transport nanoparticles containing drugs across the blood brain barrier [13].

Risk of novel adjuvants

Novel adjuvants found in protein based COVID-19 vaccines, such as Novavax's vaccine, create another source of risk. Adjuvants are known to cause a plethora of different adverse events. Aluminum for example can cause chronic inflammation [14]. The adjuvant

used in Novavax's COVID-19 vaccine, Matrix-M, has limited human use and thus little is known about its ability to cause chronic adverse events. It is possible this oil-based adjuvant could increase permeability through the blood brain barrier leading to slowly progressing neurological degenerative disorders. Traditional aluminum-based adjuvants will inactivate prions by making them insoluble until they can be phagocytized, broken down in the phagosomes, and presented on MHC molecules. By contrast Matrix-M appears to help vaccine particles, such as the spike protein, enter cells where some of the molecules can go on and induce a cellular immune response (15). The Matrix-M adjuvant, by helping the spike protein enter cells, may have an increased risk of inducing prion disease.

RNA Based Vaccines

A previous peer reviewed paper [16] described in detail the risk of the mRNA based COVID-19 vaccines. The paper specifically evaluated Pfizer's vaccine mRNA sequence but expressed concern with the Moderna's mRNA vaccine due in part to sequence homology between the vaccines. The mRNA sequence of the Pfizer vaccine was analyzed for its potential to convert intracellular RNA binding proteins, TAR DNA binding protein (TDP-43) and Fused in Sarcoma (FUS), into their pathologic prion conformations. The results indicate that the vaccine mRNA has specific sequences that may induce TDP-43 and FUS to fold into their pathologic prion confirmations. A simple manual reading of the vaccine mRNA sequence found a total of sixteen UG tandem repeats (ΨGΨG) in addition to UG (ΨG) rich sequences in the vaccine nucleic acid sequence. Two GGΨA sequences were also found. Once the vaccine mRNA is translated into spike protein, the spike protein is associated with many of the risks described above. The Pfizer and Moderna vaccines contain mRNA with different sequences from each other and from the mRNA sequence of the native spike protein. It is unclear if these mRNA sequence differences or the resulting amino acid sequence differences result in different risk levels for developing prion disease.

Adenovirus Based COVID-19 Vaccines

Adenoviral vector vaccines against COVID-19 have many of the same potential risks as mRNA and protein-based vaccines as well as having unique risks. The adenovirus vector apparatus facilitates mRNA production which is translated to spike protein. The risks of mRNA and spike protein are discussed above. The adenoviral vector vaccines lack adjuvants or other related excipients present in the protein and mRNA vaccines but the adenoviral based COVID-19 vaccines pose unique health risks due to the presence of the adenovirus.

Three approved and widely used adenoviral based COVID-19 vaccines include the Johnson and Johnson vaccine, the AstraZeneca vaccine and the Russian Sputnik V vaccine. These vaccines were created from strains of the adenovirus where the DNA sequence of the spike protein was added to the adenoviral genome and genes needed for replication were removed from the adenoviral genome [17-19]. The vaccines all use different adenovirus vectors. The Russian vaccine, Sputnik V, is comprised of two different adenoviral strains. The nucleic acid sequences coding for the spike protein are similar in the three vaccines.

The unique risks of these adenoviral vector vaccines result in part from their potential to recombine genetically with DNA from other viruses infecting the recipient or human host DNA, and from their potential to mutate. The risks are significant in part because of the large number of vaccine virus particle injected in each recipient, 5-10 billion viral particles per dose and their potential use in billions of people. The risk of genetic recombination and mutation have been acknowledged by manufacturers [20] but the risk is simply downplayed. This lack of concern is not scientifically founded as evidenced by the fact that adenoviral vectors have been documented to integrate in liver cell DNA in vivo at a rate of 7 x 10 E-5 [21] and adenoviral vectors are actually being used for recombinant based gene-editing [22]! Several obvious risks of the adenoviral based COVID-19 vaccines are described below and are based on the principals of molecular biology which have been developed following careful scientific observations.

Mutation, recombination and contamination

As with all replicating matter, including the virus causing COVID-19, mutations occur as part of errors in replication. Adenovirus based vaccines are at risk for mutation in part due to the large number of virus particles needed for each dose, 5 to 10 billion virus particles per dose. Adenoviral based COVID-19 vaccines have been depleted of specific genes to keep the adenovirus from replicating. The genes needed for viral replication have been inserted in designated host cells to allow the adenovirus to replicate during manufacturing of the vaccines. However, on occasions the deficient viral vector genome has undergone recombination with the DNA in the host cell leading to the adenovirus vaccine vector regaining its ability to reproduce in cells other that the designated host cell.

The designated host cells needed for reproduction of the adenoviral vaccine can become infected/contaminated with other viruses including other adenoviruses or non-adenoviruses. The contamination can occur at any time in the lifecycle of the vaccine product and can be limited to a single batch of vaccine from a mishap in production. The vaccine strain of the adenovirus can recombine with the DNA of the contaminating virus leading to creation of pathogenic viruses. For example, the live polio vaccine was contaminated with an cancer causing monkey virus called SV-40 when the vaccine strain of the live polio vaccine was cultured in green monkey cells during manufacturing. There are reports that the live polio vaccine used in the USA contained the cancer-causing virus until the day the vaccine was pulled from the US market.

Recombination with adenoviruses or other viral DNA already in the host

Adenovirus infections commonly occur in humans. A large study [23] found 31% of children had persistent infections with adenoviruses in their intestines. Injection of the replication deficient adenoviral vaccine vector can potentially lead to recombination

with adenoviruses already in the recipient. This can lead to viruses capable to replication that contain the potentially pathogenic COVID-19 spike protein. The adenoviral vaccine vector can also interact with other virus through recombination or other means. Of particular concern is the adenoviral vector can interact with adenoviral associated viruses, small viruses that are believed to require the adenovirus to replicated. The result could be a virus even more dangerous than the virus causing COVID-19. This is possible because some adenovirus infections may last much longer than infections with the coronavirus causing COVID-19. The longer time replicating in the body leads to increased exposure to the spike protein and its mRNA.

The injection of 5 to 10 billion adenoviral vaccine virus particles into each human and repeating this event in billions of humans is a recipe for a catastrophe. Every human is infected with multiple different microbes, including viruses. One is guaranteeing new recombinant viruses will form from these COVID-19 vaccine viral particles. Instead of having to deal with a single species of coronavirus causing COVID-19 we will face multiple different viruses (including adenoviruses) that code for the spike protein.

Incorporation into host, vaccine recipient, DNA

Common adenovirus vectors used in vaccine development and gene therapy experiments are classified by the US FDA as being "nonintegrating". This classification should not be considered an absolute as there are seldom absolutes in biology but rather a relative rating that applies under ideal conditions. Adenoviral vector DNA can become incorporated into the host genome especially if the host cell is infected with other complementary viruses that may contain enzymes to speed such a process. As mentioned above adenovirus vectors have been documented to integrate in liver cell DNA in vivo at a rate of 7 x 10 E-5 [21] and adenovirus vectors are actually used for recombinant based gene-editing [22]!

Viral shedding

Viral shedding of live viral vaccines is a well known public health problem. Children given live polio vaccine have infected immune compromised family members resulting in death or paralysis of their family members. Persistent infections with adenoviruses is a well reported event in humans. One large study [23] found 31% of children had latent /persistent infections with adenoviruses in their intestine based on samples taken during endoscopy. The authors note that these infections reactivate at times leading to intestinal shedding. Of particular concern is that the intestinal lymphocytes had the highest concentration of the adenoviral DNA and lymphocytes would be expected to come in contact with the adenoviral vaccine vectors. This could create a scenario of people or even immunized animals shedding recombinant adenovirus described above which contain spike protein and its gene, leading to an almost endless wave of human exposure to the spike protein.

HIV and secondary infections

Several previous studies with adenovirus-based HIV vaccines showed that those who received the adenovirus-based HIV vaccine had an increased risk of HIV infection. There is not a consensus on the mechanism by which the adenovirus vaccines increased the risk of a HIV infection. One popular theory is that the adenovirus alters immune cells allowing the HIV virus to enter CD4+ T cells more effectively [24]. Another theory is that the adenoviral infection alters the permeability of mucus membranes allowing the HIV virus to enter the body.

Contamination of food sources

Another concern is that farm animals in the human food chain could become contaminated with adenoviruses containing nucleic sequences coding for the spike protein. Cattle, pigs and chickens are commonly infected with adenoviruses. While these viral strains may have greater affinity for animals over humans it is well known that cross infection with zoophilic viruses, even if short lived, can occur in humans. The concern is that a recombinant vaccine adenovirus could spread to farm animals long enough to recombine with adenovirus strains that commonly infect farm animals. Alternatively, an animal adenovirus could infect an human host and recombine with the vaccine vector adenovirus in the human before re-infecting an animal. The later scenarios could occur with farm workers for example. It has been reported that researchers are developing an COVID-19 vaccine using bovine derived adenovirus vectors. Release of such a vector would almost guarantee contamination of our food supply!

MMR (Measles, Mumps, Rubella) Vaccine

The MMR vaccine has been studied for its ability to protect against COVID-19 infections. A wealth of epidemiology, molecular biology and even clinical data [25-29] suggests the MMR vaccine has a benefit at least in reducing severe COVID-19 infections. The MMR vaccine is currently being studied in several clinical trials for its ability to prevent COVID-19. Because the MMR vaccine has been in worldwide use since the 1970s it is unlikely that its use for preventing COVID-19 will lead to a catastrophic event as could occur with the COVID-19 specific vaccines. There is always the possibility that the MMR vaccine could be adulterated in a deliberate attempt at sabotage, however short of this the potential risks are fairly straight forward. This is not to imply the MMR vaccine is free of serious chronic adverse events. For example, one paper showed the MMR immunization was associated with an increased risk of developing type 1 diabetes, risk ratio of 1.88 [30]. Diabetes is unlikely the only chronic adverse event caused by the MMR vaccine. For example, it is well accepted that infections with both wild type measles virus and the attenuated vaccine measles strain can lead to measles inclusion body encephalitis. The association with autism is too complex to review here however immunization of immunologically intact adults with the MMR vaccine is unlikely to cause many cases of autism as the disease's onset generally occurs in children. As with all live vaccines, use of the MMR vaccines may not be suitable in immune compromised patients.

Conclusion

The plan to rapidly immunize the world's population with COVID-19 vaccines that either contain or code for a poorly understood spike protein and have only a few months of safety

data is extremely risky. This immunization policy has the potential to result in a catastrophic event. Such a catastrophe could occur if the vaccines induce prion disease in as few as 5% of the recipients because of the money and resources needed to care for patients with prion disease. Furthermore, a catastrophe could occur with the live viral vaccines against COVID-19 if the immunization program leads to large scale contamination of the livestock food chain with prion disease. The policy to place the COVID-19 vaccines on the market is even more irresponsible when one considers that many believe the outbreak of COVID-19 is from a viral based bioweapon and the vaccines contain a key component of the alleged bioweapon, the spike protein!

The true mortality of COVID-19 is quite debatable because of how statistics are generated. In the past a patient sent to a hospice with terminal cancer and who developed a respiratory infection prior to death would be classified as a cancer death. The same cancer patient who obtained an COVID-19 infection at the hospice would now likely be classified as a death due to COVID-19. While there is no doubt that some otherwise healthy individuals die from COVID-19, there is also no doubt that the morbidity and mortality from COVID-19 to date have been grossly exaggerated.

The most important issue with the COVID-19 outbreak that is being ignored is whether the outbreak is a bioweapon attack, and who is behind the attack. The author [16,25,31] and others have presented evidence supporting a bioweapon etiology for the outbreak of COVID-19. There is concern that that some of the perpetrators are high up in the US government. This is based on the fact that the anthrax attack against the USA in 2001 was found to have originated at the US military bioweapon base, Fort Detrick, and not from Muslim extremists as the anthrax laden letters claimed. After the origins of the attack became known the FBI investigation was shut down against the advice of the FBI agent running the investigation, Richard Lee Lambert. Lambert went on to file an Qui Tam case against the US government which described his superiors' effort to hinder the investigation of the anthrax attack and to prematurely close the case [32].

Prior to the release of the anthrax laden envelopes in 2001, Congressman Dan Burton held a hearing in 1999 [33] questioning why there was such a big effort to immunize troops against anthrax. Certain members of Congress insisted an anthrax attack against America was imminent and would come from enemies overseas. These Congressmen were correct and an attack did come 2 years later, but it was an false flag attack originating from the US army's bioweapon facility at Fort Detrick. Retrospectively it does look highly suspicious that these Congressmen were so confident an attack was coming since the attack came from a US military base! The Congressional hearing in 1999 has all the appearance of aiding the false flag attack by convincing the public that terrorists from overseas were going to attack the USA. The false flag anthrax attack aided in the US decision to invade several Muslim countries including Iraq and Afghanistan as well as drastically increase funding of US government labs for further bioweapons research.

There has been a lot of effort in part from senior US government officials to blame China for an ongoing bioweapon attack with COVID-19. This effort mimics the dishonest efforts by members of the US government to accuse certain Muslim nations of having weapons of mass destruction and attacking the US with anthrax in 2001. There is actually little evidence tying China to the COVID-19 outbreak except that NIH sent a lab in Wuhan millions of dollars for research. The first clinical cases resembling COVID-19 appeared in April of 2019 in the USA [31] and the first nucleic acid sequences of the virus were detected in Spain in March of 2019 [34], The first deadly outbreak of a respiratory illness resembling COVID-19 in a senior living facility occurred in Springfield, Virginia in Fairfax County [35] in July of 2019. Not surprisingly the notorious US bioweapons facility, Fort Detrick, was also closed down in July of 2019 for an extended period of time [36]. All of this occurred long before the outbreak of COVID-19 occurred in Wuhan, China in October of 2019.

Based on witnessing what I perceived as illegal bioweapon activity while training at NIH and witnessing suspicious activity for an additional 30 years while working in the vaccine field, I believe that one needs to be very cautious about the COVID-19 vaccines. I believe that the organizations most likely to release a follow up attack to the anthrax attack would be the same organizations in the US who initiated the original anthrax attack and were never prosecuted. These same institutions/organizations are promoting the COVID-19 vaccines. Dr. Joseph Moshe, an American virologist, came forward to warn the public about bioweapons by admitting that he was part of an organized group deliberately poisoning vaccines to use as a bioweapon. There have been accusation that tetanus immunization programs in many third world nations actually injected tetanus vaccine spiked with HCG, human chorionic gonadotropin to induce infertility. The Catholic Church in Kenya called for an halt to tetanus immunization programs after the church's own consultants found 30% of the tetanus vaccine vials contained HCG [37]. This fact lead many to believe that the immunization program was an deliberate attempt to make the recipients infertile. It is hard to explain how an human hormone, HCG, would end up in a tetanus vaccine created from bacteria in a process devoid of human cell products.

The novel COVID vaccines create potential hazards that could be worse than the COVID-19 infections. If the COVID-19 epidemic is indeed the result of an bioweapon attack originating from within the US government, as was the anthrax attack of 2001, then one or more of the COVID vaccines could also be bioweapons. Criticism in the lay press comprising false and misleading statements from non-experts regarding a scientifically sound peer reviewed paper linking the COVID-19 vaccines to risk of prion disease [16] suggests the paper's conclusion are on the mark! The potential vaccine recipient must think carefully about the real risk of COVID-19 to him or herself before receiving a COVID-19 specific vaccine.

The author believes that those who desire to be vaccinated to protect against COVID-19 should consider the MMR vaccine as a possible

first line option for the foreseeable future until head-to-head long-term comparisons are performed between the MMR vaccine and COVID-19 specific vaccines. While the data supporting MMR, vaccines use against COVID-19 is mainly emperic in nature there is a broad range of data supporting its use. The adverse events of the MMR have been studied enough to know immunization of adults is unlikely to lead to catastrophic crisis in the general population. By contrast the COVID-19 specific vaccines in the US have all been approved by the FDA approved under Emergency Use Authorization without even 6 months of safety data. The fact that all of the COVID-19 vaccines employ novel technology creates the risk for a catastrophe. The author believes the decision to approve these novel vaccines for marketing to the general population was premature.

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