

SARS-COV-2: the COVID-19 Virus Overcomes the Immune Response in the 'at-risk' group and thereby Infects the Patient yet it is the Autonomic Response which is Most Significant and Determines the Extent and Severity of Infection

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ABSTRACT

In this article the author illustrates that, at this time (ref COVID-19 Delta and Omicron variants), it is the level of the patient's autonomic response i.e. the state of their autonomic nervous system, which dictates whether the patient's health will require hospitalisation and could conceivably cause their demise. The author discusses the difference between the autonomic and immune response(s) and illustrates that what is considered to be the immune response may actually be provided by the autonomic nervous system and why a screening technology which can determine the extent of autonomic dysfunction and/or pathological onset can be so important to determine the patient's predisposition to infection.

Consider also that SARS-COV-2 is a pH sensitive virus. This is significant because it conceivably offers a plausible explanation re why vaccinated populations can be infected with SARS-COV-2, the value of optimising the innate immune response through exercise and hence the need for doctors to emphasise to their patients the need to take steps to be physically active in order to boost their immune response irrespective of whether they have been vaccinated or not, the need for the prevailing statistics to reflect the susceptibility to severe COVID infection of those in the 'at-risk' group vs the normally healthy rather than considering the overall population, and the need to recognise the effect of the seasons upon the transmissibility and severity of infection.

Keywords

COVID-19, Vaccines, Infections, Immunity.

The COVID-19 pandemic has created enormous differences of opinion as medical authorities seek to advise government(s) different strategies regarding the management of the COVID-19 pandemic. This has led to a polarised environment in which medical experts decide courses of action and guidelines often in apparent contravention of the latest evidence [1] which appears to change regularly i.e. between advocates for vaccination and those who favour less interventionist approaches. This article is an attempt to bridge the divide between the warring tribes and offer a scientific perspective which both viewpoints can embrace

in particular why current COVID-19 vaccines are not as effective as predicted.

Current medical opinion is invariably based upon the need of vaccines and drugs, however this approach has been illustrated to have limited ability to prevent infection by SARS-COV-2 yet, at least at the outset in early 2020, no-one had any experience of working with SARS-COV-2/COVID-19. The clamour for the magic bullet, in this case a vaccine, resulted in the early approval of the RNA vaccine developed by BioNTech (Pfizer) [1a] and the DNA vaccine developed by Gilbert et al. [1b] at the University of Oxford (AstraZeneca) however the debate has continued unabated because these vaccines are not designed to prevent infection – the

mRNA vaccine in particular is an immune booster – and vaccinated patients are contracting COVID-19.

In the case of vaccines consider what would be the outcome if someone had two/three vaccinations against smallpox and then contracted smallpox yet this is what is happening with COVID-19. After double vaccination people are still catching COVID-19 **so what is it that is unique in these patients which makes them vulnerable to infection?**

The evidence appears to suggest that such vaccines may, at least in some cases, be acting against the best interests of the patient and may be precipitating the emergence of a range of medical conditions as incompletely researched vaccines, which were approved or given temporary/emergency authorisation, are being shown to cause an extensive range of side-effects and, according to some commentators, may be causing more damage than is being prevented [2]. Moreover the level of COVID-19 vaccine side-effects is at a level which in normal circumstances would likely have prevented these vaccines from being approved for use. Accordingly, what will be the long-term effect of this pandemic on the NHS and hence upon the future provision of healthcare (rates of diabetes, cancer, heart disease, depression/mental health, etc)?

The debate around COVID-19 invariably omits any reference to robust natural innate immunity which comes from being physically fit, exposure to sunlight, good diet, optimising the immune response i.e. the significance of being in the very small % of the ‘at-risk’ group, yet the effectiveness of any vaccine which is injected into the patient depends upon its interaction with the autonomic nervous system without which the vaccine cannot function! So an understanding of the patient’s autonomic status and hence their immune response is essential in order to understand how effective the vaccine will be.

The patient’s autonomic and/or immune status is routinely measured in biomarker/histopathology type tests however this method is both complex, time-consuming and expensive. Ideally a single test is required to determine the patient’s health. To date there is only one technology which has such a capability: Strannik Virtual Scanning [2a] however this measures the progression of a particular medical condition e.g. as low WBC count/leukopenia, pneumonia, etc; but does not directly measure the level of specific immune components.

In addition, there is an emerging plethora of Neuromodulation techniques which claim to have the potential to treat a wide plethora of medical conditions. Nevertheless their progress to the market is being inhibited by the non-conventional, and quite radical and disruptive, nature of these techniques; lack of investment; etc. One of these techniques, perhaps the most advanced from a scientific perspective at this time, is the Strannik Neuromodulation therapy. We list below a brief PoC study and case study re how this technique can stimulate the immune response in patients.

In a hitherto unpublished study conducted by Zhuravleva TN and Komarova IA of the Mirra-Lux Clinic, Moscow (Moscow City

Government/Public Health Service Committee/Zelenograd Reg No 000575/Out-patients clinic 152) on 27th January 1998 before and after a course of Strannik Neuromodulation therapy 34 patients (50% male/50% female) results indicated:

1. The levels of Immunoglobulins IgG, IgA and IgM were within normal ranges (Mancini technique – single radial diffusion) [2b]
2. Levels of lymphocytes which were within normal ranges in the patient group before the course of Strannik Neuromodulation therapy increased by ca 50% after the course of treatment
3. Phagocytosis activity of neutrophils increased from 1.42 to 1.53
4. In a cytochemical bioassay neutrophil lysosomal-cationic proteins increased from average cytosomal co-efficient 1.33 to 1.61 (Shubitch method) [2c]
5. In an evaluation of lymphocyte populations CD3, CD4 and CD16 populations were slightly increased (indirect fluorescence staining immunoassay/Sorbent Ltd)

Patient Case Study (from practitioner based in Germany)

Hospitalised patient who was in hospital for a broken femur and very low thrombocyte/platelet count. During a course of the Strannik Neuromodulation therapy thrombocyte count increased from a below average 60,000 to a more typical 125,000.

COVID-19 is far less of a problem in countries which have low levels of diabetes, obesity i.e. the conditions which are attributed to the COVID ‘at-risk’ groups. Moreover it is almost no-risk to fit and healthy children, irrespective of where they live [3]. Vulnerability to COVID-19 infection is clearly associated with the patient’s health, irrespective of their age, and hence upon their autonomic and/or immune response.

In epidemiology it is commonplace to look for such examples in order to attribute cause to an emergent medical condition yet where COVID-19 is concerned almost everyone is deemed to be at risk, and is required to be vaccinated, yet this is clearly not the case i.e. the virus is only/mainly a problem for the ‘at-risk’ group which, in the UK, is ca 1% of the population and comprises mainly those in the population who are diabetic, obese, have diabetic comorbidities, and live a sedentary lifestyle i.e. patients who have elevated levels of intercellular and plasma acidity and suppressed levels of essential minerals, in particular Mg and Zn.

The effect of a vaccine is to block the process by which the virus infects the patient or, as in the case of the mRNA immune boosters, to stimulate the immune response against the virus - usually one of many immune proteins. Moreover, in the latter case, by doing so it alters the immune response and hence susceptibility to other infections e.g. how cowpox prevents infection by smallpox. The literature contains many examples whereby a drug and/or a vaccine has been linked with side-effects i.e. an increase in the level of other ostensibly unrelated medical conditions. In the former case the vaccine acts by blocking the ACE2 receptor and hence inhibits infection however it has now been recognised that COVID-19 has the capability of infecting the patient by more than one pathway [4] and thereby illustrates that the virus has the capacity to continue to infect patients including those who have

been vaccinated. Furthermore it is increasingly recognised that COVID-19 is a pH sensitive coronavirus – similar to SARS and MERS [5-7] – and hence that an increased level of intercellular and plasma acidity has the effect of releasing ACE2 from its receptor site so the spike protein in a COVID-19 vaccine, which blocks the ACE2-receptor, will likely be released from this binding site and become increasingly ineffective.

Is it actually significant if we become infected with COVID-19? Only if we are in the ‘at-risk’ groups? For the rest of us it is little more than a mild inconvenience [8,9].

There are many proteins which the body uses to deal with infection so it is surely unrealistic to expect an immune boost of a single immune protein to have a comprehensive response, especially so against a virus of such immense complexity as the AIDS or SARS-COV-2 viruses.

Viruses and Vaccines alter our genetic profile. Moreover Vaccines are designed to do so. In general viruses insert their DNA into our DNA. This creates the genetic and cellular memory upon which the immune response is based - and hence the safety and effectiveness of such products is therefore based upon the prevailing level of knowledge re genetics/virology but largely excludes any consideration of lifestyle (phenotype). Some viruses are RNA based. The scientific consensus is that RNA viruses do not influence our DNA however research has been published which illustrates that viral RNA can, and does, influence our DNA [10] and can therefore be expected to cause vaccine-related side-effects e.g. blood clots, heavy menstruation or loss of menstruation, variable heart rate/various cardiovascular indications (myocarditis/pericarditis) [11,12], etc. In such cases it would appear to be logical to look for patterns in the data which would explain how such side-effects occur. If viral RNA is to be used as the basis of an immune boosting vaccine/drug it is reasonable to expect that the vaccine would not therefore have long lasting effect.

Moreover **every drug and vaccine depends, for its effect, upon the autonomic nervous system** (which includes the immune response) yet the nature and structure of the autonomic nervous system remains poorly understood e.g. skin is considered to be a physiological system when in fact it is an organ. There are similar examples with the endocrines and immune systems i.e. there is not an endocrine system because the endocrines are components in most of the body’s physiological systems, and there is not an immune system but instead an immune response. This explains how for example the various endocrine glands play a role in the systemic regulation of blood glucose levels. **This lack of a precise understanding of the relationship between brain function, the physiological systems, and molecular biology is a significant limitation of biomedicine** [13,14].

The main COVID-19 side-effects influence the function of the following organs: blood and peripheral blood vessels, pancreas [15,16], heart, kidneys, lungs and liver i.e. the organs which are involved in the regulation of pH, blood glucose, blood pressure and pO_2 .

All proteins, including the plethora of immune proteins which present in the immune response to a viral infection, are directly or indirectly genetically expressed; in particular the long, medium and/or short chains, which are components of the many and various immune proteins [17]. Moreover the nature and structure of these immune proteins is of particular interest because such proteins contain -NH₂ and -COOH groups which makes them polar, soluble, reactive and/or forms antibodies which are highly reactive to viruses. In the case of the immune response the genetically expressed proteins and/or as antibodies are required to act upon the invading virus or bacterium however in the case of patients in the ‘at-risk’ group the normal immune response has effectively been blocked or inhibited and has resulted in what has become known as a ‘cytokine storm’ in which the cytokines and conceivably other immune proteins have been produced and presented to the virus in the lungs but for some reason have not been able to react against their reactive substrate. As they do not react into a form which facilitates their removal they accumulate at the reactive site. This occurs because Cytokines and many other immune proteins [18] require Mg in order to be elevated to the reactive state and thereby react with their reactive substrate however in an acidic medium - which is often encountered in the ‘at-risk’ group - Mg levels are severely depleted which slows or prevents the immune response against the virus.

So what is it that occurs in these patients - the ‘at-risk’ group - and does not occur in the majority of the population?

All proteins are polar therefore their biological properties and effect are based upon their pKa values and hence upon pH. The coronaviruses SARS and MERS are pH sensitive viruses [5-7, 19] and so too is the structurally similar coronavirus SARS-COV-2 i.e. the ability of SARS-COV-2 to infect is influenced by the prevailing levels of plasma and/or intercellular acidity [19a].

Patients in the ‘at-risk’ group - typically diabetics, diabetic comorbidities including cardiac problems, obesity, immunosuppressed - have elevated levels of plasma and intercellular acidity as a result of leading a sedentary lifestyle and hence having elevated levels of pCO_2 , excess body fat (which although sparingly soluble is often exceedingly acidic), low levels of the essential minerals Mg, Zn, Cr, etc; and high levels of the transition metals Fe, Al, Pb, etc, which, in the latter case, often play a significant role in the onset of free radical (ROS) reactions in the body [20].

Cardiac patients are often prescribed ACE2- inhibitors to treat their condition [21]. This is significant because the ‘at-risk’ group of patients appear to have free/unbound ACE2 in plasma which enables the spike protein in COVID-19 to bind with the ACE2-receptor site and hence infect the patient. As this does not occur to any significant extent in the healthy it must be considered to be a factor, or related side-effect, in the process of COVID-19 infection. This is supported by noting how firstly unvaccinated patients in the ‘at-risk’ group, and secondly that vaccinated patients have been infected and predisposed to hospitalisation and premature death as a result of their exposure to COVID-19 i.e. it is the low

level of their immune response which is particularly and critically significant and which determines their vulnerability to infection.

The lack of Zn is particularly of concern because Zn catalyses the conversion of CO_2 into HCO_3 by carbonic anhydrase and thereby neutralises to some extent the prevailing plasma acidity so a lack of zinc inhibits the release of CO_2 and/or its conversion to HCO_3 . In addition a lack of Zn means that insulin cannot be stored as the zinc-hexamer in the islets of the pancreas with the result that the patient will exhibit the characteristic symptoms of diabetes. This is significant because the absorption of O_2 by haemoglobin is pH dependent so if pH cannot be regulated, in particular the level of acidity, in the COVID-19 patient they will be increasingly in need of hospitalisation and at risk of death. This argument has been proposed in the paper by the author which was completed in ca February 2020, published in June 2020, and discussed on many, many occasions on LinkedIn [22].

It is now recognised that both unvaccinated and double vaccinated patients are transmitting the virus.

If the current incidence of infection is more or less the same between the vaccinated and unvaccinated [23] what does that tell us? Is the vaccine u/s? Is the innate immune response more effective than the vaccine bearing in mind that vaccines depend upon the blood and peripheral blood vessels/autonomic nervous system for their effect? If they are not injected into the patient's body/blood they have no effect! *So the effectiveness of any vaccine must depend upon the state and/or preparedness of the autonomic nervous system and hence the prevailing level of knowledge/understanding of how the brain regulates the autonomic nervous system.*

This includes what is commonly known and referred to as the immune 'system' which is provided by the genetic expression of immune proteins in a disparate range of organs which are located throughout the body e.g. bone marrow, spleen, thymus, lymph glands, etc; *yet to argue that these organs function as a neurally regulated physiological system - a network of organs which have a functional role - is difficult to justify unless the immune response is regulated by an alternative mechanism and/or may actually be provided by the neurally regulated autonomic nervous system.*

The immune response is optimised mainly through diet, exercise, lifestyle and avoiding stress. The common feature of these four psychological and/or psycho physiological factors is that they prevent the build-up of plasma and intercellular acidity, and thereby optimise the levels of genetic expression (transcriptase(s) are Mg and Zn dependent), and protein reactivity i.e. the genotype and phenotype. This illustrates that the immune response is influenced to some extent, if not completely, by the autonomic nervous system. This occurs because the regulation of pH (which is maintained at ca 7.35 in the healthy patient) is one of the body's most significant physiological systems i.e. neurally regulated network of organs which have a functional role, in this case to maintain the body's pH as close to 7.35 as possible. Other physiological systems include breathing/ pO_2 , blood cell content, blood glucose, blood pressure, temperature, etc.

In the case of COVID-19 infection most statistics refer to whole populations and do not differentiate between the at-risk group (the diabetic, obese, sedentary, hyperindulgent, and immunosuppressed i.e. who have conditions and/or symptoms which are characteristic of 'autonomic dysfunction') and the rest of the population in particular the large numbers who lead a fit and active life. Surely therefore the statistics should report the effectiveness of the so-called vaccines against both demographic groups i.e. (i) against the fit and healthy and (ii) against those who are considered to be in the 'at-risk' group.

Then there is the north-south debate whereby populations exposed to strong summer sunlight - which is recognised to influence the autonomic nervous system [24], and a dry atmosphere have lower incidence of COVID when compared to populations experiencing the damp/wet cold winter months which sustains the transmission of COVID-19 aerosols. Once again the prevailing science being applied to the COVID-19 situation ignores important issues e.g. the effect of Vitamin D [25,26], UVB [27], and exercise [28] upon COVID infection. Yet here again lies another apparently paradoxical situation: the metabolic function of Vitamin D is Mg dependent i.e. it functions most effectively in the fit and healthy [29,30]

There are many people who for various reasons depend upon medicines which most likely offer the best solutions for their particular circumstances because their condition has progressed to the stage whereby irreversible cellular change has occurred and where the neuroregulatory mechanism has limited effect and/or can no longer return the body to its healthy state; but there is also a need to adopt and adapt a better understanding of the process by which the brain regulates the autonomic nervous system. It is only by doing so that we can improve healthcare outcomes and reduce its cost.

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