BOMRIM

Bulletin on Microvita Research and Integrated Medicine

Vol.12 No.3 October 2020 ISSN 2321 – 2349

Special issue on COVID-19

Contents:

Editorial

COVID -19 or CONEMID-19

Coronavirus disease 2019 (COVID-19) pandemic is engulfing the humanity like a dinosaur. The world is facing the catastrophic attack of SARS-CoV-2 quite differently from other strains of corona family[1]. This small entity has shaken the entire world physically, mentally and economically. People have started thinking that this is not a natural virus but an artificially generated virus made to gain economic supremacy without a military war. Japanese Nobel Laureate said with confidence that he is 100% sure that this was artificially prepared/cloned in the Wuhan virology centre. His plea is that if it would have been natural, it must have shown its variability with temperature. But, this is at work in all the temperatures. That brings at least a point to be considered that this is not affected by temperature variation.

Natural corona virus usually affects animals and in man, it has mild upper respiratory tract symptoms. SARS-CoV-2 on the other hand, has a broad spectrum of variations from asymptomatic or paucisymptomatic to mild, moderate, severe, and often fatal outcome. In many healthy individuals, it has precipitated sudden deaths[2]. So, why so much variations?

A Spanish study revealed that it is not demonstrating sustained immune response. The persons who are demonstrating positive immune response initially, later on, they are without any immunologic benefit. Even the viral shedding is quite erratic, the median duration of viral shedding was 20 days in survivors but SARS-CoV-2 was detectable until death in non-survivors. The shortest duration of viral shedding observed among survivors was eight days whereas the longest was 37 days. Even administration of antiviral treatment (Lopinovir/Ritoravir) did not shorten the viral shedding[3]. It has also been recovered in the urine, stool and tears[4] pointing that they travel or transmit through smell (nose), taste (mouth), form (eye) and touch inferences. We don't know how long it lives and at what temperature it can be killed. There is as yet no definite medicine to kill the virus and only symptomatic treatment is available and the stress is on measures to protect from its transmission. The hope of getting effective vaccine is still farfetched. WHO Director-General, Tedros Adhanon Ghebireyesus recently, commented that a number of coronavirus vaccines are now in phase three of clinical trials but "there is no silver bullet at the moment and there might never be."

The above characteristics of unpredictable behavior, multiple mode of transmission, uncertainty of its life span and the effect of temperature, erratic immunologic behavior and unresponsiveness to available treatment point to that SARS-CoV-2 is not a natural virus of the coronavirus family. There are features which suggest that this should be considered as negative microvitum (Table 1).

Microvitum is the smallest living entity, the smallest unit of life which is a silverline between electron on physical level and ectoplasm on psychic strata. This term of microvitum

was first coined by Shrii P. R. Sarkar is his presidential address to Renaissance Universal (RU) on 31st December, 1986 at Kolkata. He out rightly said that virus is a vague term because virus is not the smallest living entity rather microvitum is the smallest living entity and the term virus should be replaced by microvitum. He further elaborated the characteristics effect of microvita – positive and negative microvita on human beings[5].

Table 1: Features of Negative microvita and SARS-CoV-2

Negative Microvita	**SARS-CoV-2**
They cannot be killed. They die naturally	Don't know the exact life span
Temperature variation – hibernate	Working at all temperature
Move through inferences throughout Universe	Moving/transmitting by smell, touch, form and taste inferences
Affect both body and mind. Physical> Mental	Affecting both body and mind
No definite drug treatment, cure by its own or by positive microvita	No definite available treatment
No role of immunity	Erratic immune response

According to this theory (Microvitology), the physical or the crude variety of microvita can be demonstrated under high power electron microscope and the scientists have given them the term 'virus'. Virus word has come from Latin, where it means 'slimy liquid' or poison. It does not connate to the smallest living entity. Moreover, scientists think that virus is a stage between living and non-living. Microvita, on the other hand clearly denote (*micro*-small, *vitum* - vital) the smallest living entity or the smallest unit of life. Therefore, the term 'virus' should be replaced by microvitum. According to Microvitological concept, microvita may be positive or negative. The positive microvita are conducive for human psycho-spiritual progress while the negative microvita are disease causing and detrimental to human physico-psychic health.

The microvita theory further promotes that these microvita – positive or negative make a balance in the Universe and so also in the human corporal structure. The characteristic is their movement. They can travel throughout Universe without consideration of temperature or barometric pressure. They move through the waves- cosmic waves or inferential waves. Microvita use the inferential waves of sound, touch, form, taste and smell. Sound has the subtlest and smell has the crudest inferential waves. Positive microvita prefer the sound waves and negative microvita has preference to smell inferential waves.

Negative microvita when come from some other planet under specific condition, destroy the life. Influenza epidemic/ Spanish flu of 1918 is an example when the virus (negative microvita) that first time attacked the Earth after First world war. It was the inferential wave of dead and rotten bodies that attracted the negative microvita from other planet. Before that, the planet earth had never witnessed influenza[5].

The great Microvitologist Shrii Sarkar foresaw that in future, this planet will be visited by many new diseases due to the influence of negative microvita from other star systems which cannot be disposed even by the best physicians[6]. He further pointed out that

these negative microvita; disease causing microvita die their natural death. They cannot be killed. The drugs used in the treatment, only support the symptoms but cannot kill the virus. The only thing which can cause the premature death of negative microvita is the presence of positive microvita which can devour negative microvita and the person will be cured[5].

The microvita theory further explains that why there is so much variation in clinical presentation of COVID-19. It is because of the presence of balancing positive microvita in the body. Strictly vegetarian (meat attracts negative microvita), rigidly following cardinal ethical principles, having psycho-spiritual up-liftment through good company, good literature, regular meditation and service to humanity and devotional singing (*Kiirtan*) are the measures that increase concentration/flow of positive microvita and those who are involved in such activities will be relatively spared or minimally affected by negative microvita disease. In future, this Earth will also face the attacks of negative microvita and then these steps if followed meticulously will definitely protect from the harmful effect of negative microvita. As per Microvitology, negative microvita affect the body primarily but also affect the psyche. The fear of death prevalent in the people and patients and the depression resulting in suicide are further evidences that SARS-CoV-2 is behaving exactly as a negative microvita[7,8]. Therefore, in the present context of COVID-19, the SARS-CoV-2 can therefore be termed as negative microvita with confidence, based on the characteristics it is expressing which are similar to the features of negative microvita as described by Shrii Sarkar.

In conclusion, COVID-19 caused by new coronavirus (SARS-CoV-2) spreading as pandemic and resulting in death of millions of people world over is in fact, a negative microvita disease as described by Shrii P.R. Sarkar way back in 1986. This negative microvita disease arising from unknown source but attacking those who have preferentiality to attract negative microvita because of their abnormal physico-psychic behavior. Only positive microvita through psycho-spiritual approach will be able to control and cure the disease. Based on the theory of Microvita, this pandemic disease should be rightly called as Corona Negative Microvita Disease-2019 (CONEMID-19) rather than COVID-19. This pandemic disease has also been called as Corona Microvita Disease - COMID-19 (as used by Henk de Weijer in this issue), but that conveys that disease is because of microvita (not specifically negative microvita). Therefore, more specifically Corona Negative Microvita Disease-2019 (CONEMID-19) is the better term for this pandemic disease of COVID-19.

References

1. Verma SK. 2020. Human coronavirus – From common cold to COVID-19. *Bull. Microvita Res. Integr. Med.* 12(2): 27-33.
2. Wu Z & Mc Googan JM. 2020. Characteristics of and important lessons from the coronavirus disease 2019. (COVID-19) outbreak in China. Summary of a Report of 72,314 cases from the Chinese Center for Disease Control and Prevention. *JAMA*. 323: 1239-42.
3. Zhou F, Yu T, Du R, Fan G, et al. 2020. Clinical course and risk factors for mortality of adult in patients with COVID-19 in Wuhan, China: A retrospective cohort study. *Lancet*. 395:1054-1062.
4. Kamps BS & Hoffman C. *COVID REFERENCE*. 4th ed. 2020. Steinhauser Verlag.
5. Sarkar Shrii P.R. 2012. *Microvitum in a nutshell*. 4th ed. AMPS Publications, Kolkata.
6. Verma SK. & Jain V. 2020. The great microvitologist – Shrii P.R. Sarkar's prediction. *Bull. Microvita Res. Integr. Med.* 12(2): 22-24.
7. Mehta SK & Murkey B. 2020. Psyche and COVID-19. *Bull. Microvita Res. Integr. Med*. 12(2): 25-26.
8. Rudolph HJ. 2020. Microvita and the coronavirus epidemic Part II. Preprint, March, 2020. DOI: 1013140/RG2219577.21608.

-- S. K. Verma

Signs of Intelligence and COMID-19

Henk de Weijer

Global Association of Neo Humanist Educators (GANE)

Email: weije265@planet.nl

Abstract

Biological organisms are the product of what we call evolution. Ultimately, all complex organisms, including humans, descend from the Last Universal Ancestor, LUCA. Vertebrates, but also invertebrates, such as insects, have a brain. Bacteria and viruses, such as the Coronavirus on the other hand, have no brain but are still smart. Energy is a blind force. It does not know what is the most appropriate action and what should be avoided. Therefore, it cannot be the creative impetus of evolution. Since no components other than energy and consciousness exist, only consciousness remains to fulfil that task. Because of that it must be a primary phenomenon, not a derivative from energy. Materialism, which assumes the opposite, is incomplete.

We, like other organisms, use our brain as a subtle and complex tool. If someone wants to identify with something, why only with the brain? Each brain is part of an organism with a specific form that can be perceived by the senses. Interpretation of all external or internal phenomena is performed by the mind. Both organic form and mind have specific forms that are continually evolving. Every form, be it abstract or concrete, is based on a specific substance. The main focus of this text is an analysis of that substance. If consciousness is involved, and it certainly is, it will require an entirely different definition from the choice of materialism.

This new approach needs open, yet critical minds. It is fully clear that the approach presented is speculative. Answers that develop may or may not be accepted by materialism but right or wrong will only follow empirical research.

Keywords: Microvita, consciousness, intelligence, mind, brain, substance, viruses

Introduction

At this very moment, every person and every country on our planet is facing the Corona Virus Disease COVID-19. Viruses are tiny objects, no larger than 120 nanometres[1]--or 0.12 micrometres - yet, they can disrupt whole countries. An epidemic affects a large part of the population. A global outbreak - such as the current Corona crisis - is called a pandemic. In the past, the approach to epidemics was blind denial, despair, assumptions, religious dogmas and even pogroms. The pathogens involved seemed to have died but they did not. New endemics remain possible.

Three deadly variants of the plague devastated Europe between 1347 and 1351, killing 30% of the population[2]. The disease disappeared but nobody knows why and where. However, its disappearance was not complete; occasionally it returned and still can. The present pandemic of the coronavirus is the first time that biological insight, technological achievements, global analyses and communication, are used and integrated to control the problem. Despite everything, this does not mean that essential features of a virus are known.

As long as approaches of the past are blindly accepted, no desire develops to be confronted with enigmatic observations that trigger a reaction and ultimately lead to new explanations. For thousands of years, concepts like substance were labelled. In the past 700 years, gradually developed devices, like lenses and different types of microscopes, have opened the door to a wide variety of chemical and biological systems. Not only were atoms, molecules, bacteria and viruses found, it also became clear that discovered systems could be an asset or a danger. At present, in-depth research is needed to investigate endangering systems, like viruses, bacteria (i.e., some), fungi and prions[3].

Clinical observation shows that even primary forms and organisms can perceive, remember and quickly mutate. If both chemical structures and the simplest organisms, all without brains, exhibit some intelligence the question must arise, what is the cause of that ability?" The presently used word 'information' is nothing but a new label. Any implementation of information needs observation, interpretation, and the development of a practical idea to achieve an intended goal. Needed for this are intelligent readers with a creative skill.

Both atoms and ideas exist. Neither of the two can be 'nothing.' Each must be based on 'something,' on a 'substance.' Traditionally, atoms are understood to be compositions of only elementary particles, granules of a specific substance, energy. If all forms can have a mind, also atoms and molecules not only contain granules of energy but also granules of something else, some subtle substratum. Such collection of granules will not automatically be a mind but there is every chance for that. Thoughts and ideas do not drop from a clear sky. They need the basis of atoms, molecules, viruses, and simple or complex biological organisms.

This text is an effort to show that both atoms and ideas contain intrinsic energy, as well as local forms of another, most subtle substance, consciousness. Here consciousness will not be considered as by-product of energy but as the primary cause of all forms, and energy as the second cause. Consequently, a new definition of consciousness is required. The inclusion of consciousness as a primary factor, explains the observed intellectual qualities of brainless biological systems. It also appears to be an essential new factor in theories about the evolution from single-celled to multicellular organisms.

Atoms, bacteria and viruses

All forms –except elementary particles– are compositions of other forms. An atom is a collection of elementary particles; its size is ~0.5 nanometres[4]. Molecules are collections of two or more atoms. Mega-molecules are large collections of atoms, molecules and compounds.

Spherical bacteria are prokaryotic cells with a diameter of about 500-2,000 nm. The diameter of rod-shaped bacteria is 1,000-10,000 nm[5]. Eukaryotic cells have a much larger size; their diameter can be between 10,000-100,000 nm[6]. The organisms are too small to be seen with the naked eye. Technical support is needed.

Around the year 100 AD, the Romans discovered that, if a piece of glass, thick in the middle and thin at the edges, would be held over an object, it would look bigger. They accepted what they saw and felt no challenge to investigate.

The smallest viruses are the picornaviruses, like the foot-hand-and-mouth disease virus– FHMDV. Their size is 30 nm[7]**.** An electron microscope is needed to observe it. Microbiology describes viruses as collections of DNA or RNA. Both are incredibly long molecules – mega-molecules. The poliovirus, with its 8,000 nucleotides, is one of the smallest genomes and is a picornavirus. Corona virions have a too long, single-stranded RNA genome of 30,000 nucleotides, surrounded by an envelope. Their size is about 120-160 nm[8].

For each of us, the sizes mentioned are abstract. The smallest we can perceive is about 1 mm. If we assume the size of an atom to be1mm, the relative size, of virions and cells are beyond imagination.

Biological form	**Real Size**		**Relative size**	
atom	~0,5	nm	1	mm
poliovirus	22-30	nm	44 - 60	mm
corona virus	150	nm	300	mm
prokaryotic cell	1,000 - 10,000	nm	2 - 20	m
eukaryotic cell	0,000 - 100,000	nm	20 - 200	m

Whoever looks up from the boundaries of big or small eukaryotic cells, will realise how relatively small viruses, and even atoms, are. At least our planet contains wide varieties of granular units. When units of the chemical world meet, two reactions may occur. 'Like attract the like.' Gravity is a primary force that follows this rule. Another reaction is represented by: 'Equal poles repel each other.' Electromagnetism is the basic force in our universe that follows this rule. Combinations of the two also occur. These attractions and repulsions are blind forces. No conscious and unconscious preferences and no intelligence is involved.

In the biological world, three types of symbiosis, relations between organisms, exist.

The first type [1] is *mutualism* and both involved organisms benefit from it. Lynn Margulis[9] developed the idea that, in the course of evolution, different types of organelles fused into the first prokaryotic cell.

A second type [2] is *commensalism*. Woodpeckers drill holes in thick deciduous trees, to eat ants and build a nest. The woodpeckers benefit, while the trees suffer no damage.

A third type [3] is *Parasitism* but now one party benefits and the other is damaged or pays with its life. Viruses are notorious examples of this form of symbiosis, although also viruses have been discovered that clear infections in diabetic foot ulcers[10].

These few examples show that creative systems design and implement procedures. The first two focus on constructive ideas to improve the quality of life. The third example of symbiosis may be ruthless, but it also shows the ingenuity of a specific virus to achieve its intention. All three show intelligence.

How can systems like viruses, have such a devastating influence on biological systems? If all forms are systems --compositions of elementary particles of energy– what explains their intelligence? Viruses are not the only ones to act with destructive intentions. Bacteria do a similar kind of work but also may choose for a constructive approach, be it, “once learned, always done.” Did different varieties of viruses and bacteria exist during the existence of human beings and if so, how did they try to solve upcoming problems? What can we learn from the past?

Past endemics, confrontation and total despair

Looking back to the past will show that epidemics and pandemics occurred very regularly. Pharaoh Ramses V died in 1157 BC. The cause of his acute death was, most likely, smallpox (a virus).

A possibly similar virus probably caused the Antonine plague, which erupted in 165 AD and lasted until 180 AD. At its peak, 2,000 people died every day, in Rome alone. About 7.5 million people, 10% of the Roman empire, died from it. It was the first European pandemic. Shortly after the outbreak in 165 A.D., a statue of Apollo was erected in Heliopolis to save people from the horrible disease. The cause of the disease was not discovered, and a functioning vaccine not developed until 1947. It took 800 years before it was declared to be overcome in 1980[11].

Another pandemic, called the Plague or Black Death, entered from a harbour in Sicily in 1347 and faded away in 1352[12]. In the meantime it had killed 60% of the population; about 50 million people. What caused the disease, how could it be prevented, and how could patients be cured? Not a single answer was available. In desperation, the ill were separated from the not ill and left to their own devices. Maybe God wanted to punish them for living a bad life. Many thought so and did penance by participating in processions that could last up to three days. Astronomers calculated that the stars were in a bad position. Apothecaries developed and collected new potions, sold them and became wealthy. Jews had hygiene rules that went beyond what the general population was used to, and their mortality rates were lower. They were accused of poisoning water sources. In South Germany and Switzerland, pogroms arose. After 1347, the disease kept returning but in smaller outbreaks. The plague is not a viral but a bacterial disease.

Three different forms of plague are known:

1 = bubonic plague	the most common form	swollen lymph nodes	bacterial disease
2 = lung plague	least prevalent, very contagious	blood infection	bacterial disease
3 = septicemic plague	the rarest form	lung infection	bacterial disease

In 1928 Fleming (1881-1950) developed the first antibiotic, penicillin. Schatz and Waksman ended the terror of the bubonic plague with streptomycin[13]. Since 2010 the disease still occurs but the yearly global number of plague cases is low: 1-17. Although the bubonic plague remains a severe disease, it is no longer lethal, if treated with antibiotics. It took almost 600 years to reach this[14]. What a relief!

The Spanish flu is another pandemic. It emerged only 100 years ago. World War 1 ended 11 November 1918. Late 1916, the Étaples military hospital in France was affected by an unknown disease with a high mortality rate that closely resembled the flu. It later turned out to be the first outbreak of a virus that mutated, spread to pigs, and subsequently became the cause of a pandemic. In March and April 1918, 200,000 American soldiers crossed the Atlantic, back to their basis camp in Fort Riley, Kansas. 4 March at 09:00 in the morning, a soldier reported his complaints to the hospital. At noontime, 100 of his fellow soldiers reported similar complaints[15].

In September the disease had spread over the whole world and took the lives of at least 50 million people, of which in India alone 12 million. Without a vaccine or treatment plan, it was up to the local mayors and officials to improvise plans to ensure the safety of their citizens. Besides, they were under tremendous pressure to appear patriotic in wartime and were confronted with a press that played down the disease. Many officials made dramatic decisions. In the United Kingdom journalists were forbidden to report about the disease, because 'the first priority was the war' and reports about the lethal disease would demoralise soldiers and civilians. Also, the American, French and German press was reluctant to write. Spain was not involved in the war and had no reason to keep silent. The Spaniards called it the ‘French flu’. In a number of countries the existence of the disease was denied, but it must have lived in rumours. That denial was not an incentive to think further about the disease. Yet, the sick were not left to their own devices, as in the plague. Florence Nightingale had already demonstrated the value of open attention and hygiene.

What caused the virus to emerge, and how did disappear? Four phases occurred, and the second was the most lethal. The third phase was no longer lethal to humans. One idea is that all viruses mutate, initially to a more efficient and later to a less dangerous mutation. At present, it is understood as a standard procedure with pathogenic viruses. What decides for this procedure and what implements it? The Spanish flu is referred to as 'a human disease,' which does not mean it is people-friendly[16]. 'What in a virus makes it so?'

Tools, research and first turning points

The above questions can only be answered if an openness of thought exists and as yet unknown forms are observed, suspected or concluded. The lower limit of detection is about 0.5 mm. That limit can only be -crossed with tools.

Anthony van Leeuwenhoek (1637-1732) was able to make a microscope with a magnification factor of 75x -150x. With this instrument, he discovered his first microbes in 1676 but did not know what he saw and found it difficult to give names because his observations were utterly new. His microscope was so advanced that not before 1850 the newly developed compound microscopes could see what he saw.

Louis Pasteur (1822-1895) discovered that heating wine until 55ºC did not destroy its taste but did kill the present bacteria. By his work, a significant number of attenuated vaccines were developed to treat a big number of globally lethal bacterial diseases, in 1888 a first vaccine against diphtheria and in 1897 one against the plague. He also discovered the chirality of molecules. In 1928 Alexander

Fleming developed penicillin, the first anti-biotic.

In 1886, the father of microbiology, Martinus Beijerinck (1851-1931), concluded that the disease in the tobacco plants was caused by something smaller than a bacterium and called it 'virus' (TMV, Tobacco Mosaic Virus). In 1931 Ernst Ruska built the first Transmission Electron Microscope (TEM) with this microscope, it became possible to see viruses[17]. After 1955, the first commercial electron microscopes were built. Details up to 0.1 nm in 3D could then be seen, which opened the door to a whole new area of research.

Intelligence at micro level, something to think about

Do only humans have intelligence? Answering that question in the affirmative is tantamount to denying the process of evolution. Answering the question in the negative corresponds to acceptance of the evolutionary process, but it also has consequences. It means that the very first life forms, such as cyanobacteria, already have some form of intelligence in them. That may seem theoretically correct, but are cyanobacteria really our last universal common ancestors (LUCA)? Does their intelligence have no cause other than itself? An answer to that question is of second-order and comes after empirical determination of intelligence in bacteria.

In recent years a lot of research has been carried out from which intelligent behaviour of chemicals, plants, and biological systems can be concluded. Just look at the following example of a test done by Gürol Süel of UC San Diego.

Ions are atoms or molecules with a surplus or shortage of electrons in the outer shell. As a result, an e-m tension will develop. A neuron contains neurotransmitters that, within the envelope of the membrane, are packaged in vesicles. In an active neuron, these vesicles move towards an axon. At this moment, 100 neurotransmitters, like the hormones norepinephrine and epinephrine, have been discovered. As soon as they arrive in the axon, a change in the e-m potential difference occurs in the membrane of the axon. The membrane of the vesicle then merges with that of the neuron. The neurotransmitters pass the occurring potential on to the dendrite of the receiving neuron. This process is called ‘the passing on of information.’ The transmission of information presupposes, among other things, an understanding reader, that is, the presence of intelligence.

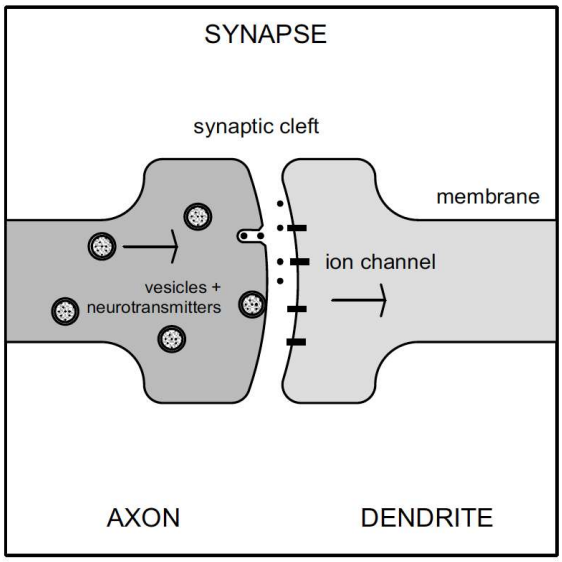


Figure 1.

Therefore mentioned potential difference appears to occur not only in biological systems with brains but in all living cells. Süel did a test with grass bacilli (*Bacillus subtilis*). For five seconds, some of those *bacilli* were illuminated with the blue light of a laser. It turned out that the blue light caused a change in their potential. Ions were continually flowing in and out of the cell. That process did not end after the five seconds but continued for several hours. The membrane potential of the germs that were not illuminated, always deviated from those that were illuminated. If Süel's grass *bacilli* just followed a mechanical reaction, how could it last so long after the light had stopped? Did the bacilli react because of their memory, indicating they have a kind of mind? Are the movements of a football around the playground the result of its own initiatives and does it cheer when a goal is scored? No, the football only reacts to occurring physical influences.

Footballs do contain microvita but their configuration is far too simple to play an active role in the game. A human body contains about 10^12 cells. Could these cells choose to respond in one

way today and in another tomorrow? They directly react to all physical situations, which tomorrow may different from today. If they can read information, as Paul Davies suggested, they must have some skill to read, which is a sign of intelligence. Atoms, molecules, cells and designed activities, like the football game, cannot deny the laws of nature but also contain something that is caused by creativity. This situation can be compared with the two essential components of a fabric, warp and waft. Warp brings structure; waft is the creative component. A combination of the two brings the creative intention to the fore ground.

Consciousness, the creative primary cause of forms

In *Sutra 1-1* of his opus magnum, *Ananda Sutram*, the Indian philosopher Shrii P.R. Sarkar mentioned the existence of two elementary components in the universe.

'The single Infinite Being is composed of Consciousness and its Operative Principle.'[18]

Not only that:

'None of them can stand without the other. That is why it is said that they are an inalienable concomitance.'

If our universe contains objects with specific forms, it must be granular. If that is the case, it could not mean that the space between these granules is a substratum of a third principle, as this would be a violation of *Sutra 1-1*. A first conclusion can be that consciousness and the operative principle both exist in granular and nongranular form, or in other words, in local and nonlocal form. It also means that nothingness is an illusion; it does not exist. Empty space may exist, but it cannot be empty. If nothingness does not exist, everything must be entangled, since their internal and external space is filled with nonlocal consciousness. If ever a bifurcation occurred between consciousness in local and nonlocal form, when did that happen?

Immediately after the Big Bang, the level of energy and the temperature were so high that no elementary particles could exist and only a plasmatic state emerged. If, after a fraction of a second, particles of energy could emerge, would it not be logical to conclude that in the same epoch also the particles of consciousness emerged?

The smallest elementary particles have a name, quarks. The smallest particles of consciousness never had a name, until Shrii Sarkar mentioned their existence and coined their name: *microvita*, singular *microvitum*. Their size is really tiny: *'Billions of microvita produce a single carbon atom.*' These particles of consciousness, these microvita, are undoubtedly involved in the production of forms, be it not only in chemical and biological forms but also in mental forms, ideas and memes. What a challenge!

In Sutra 1-2, Shrii Sarkar mentioned two causes of form, “a material and an efficient cause.” At first sight, this seems different from Aristotle’s four causes of form: the material, the efficient, the formal and the final cause[19]. Aristotle indicated that a material is “that from which a thing is made.” [20] Although he did not mention the existence of a creative component, he did accept the maker of a form, "the deviser of a plan' and 'the producer of a product.' Apart from these two causes, he saw the need to develop a specific form to a specific function[21].

For materialism the first two suffice, but in architecture all four are essential. Besides, it also is aware of two phases in the process of realisation of which the first is the process of abstract design and the second the process of concrete realisation. Both processes rest on two components, energy and creativity. Without creativity, no appropriate design will follow, but the same applies to energy. Only microvita are available and capable to take on the creative role.

Dogmatic approaches

The granular character of all forms is common knowledge. Discoveries of a creative component do not come by itself. It will be the result of teams with open minds. If new approaches are rejected only because they are inconsistent with existing practices or paradigms --in a reaction,

called the Semmelweis reflex[22]--, it will block the development of new insights. Ignaz Semmelweis (1818-1865) was a Hungarian physicist, working in Vienna's First Obstetrical Clinic. He found that 36 of the 208 women died of a maternal fever after the doctors, who touched them, had pre-examined and touched corpses. He suggested those doctors to first wash their hands in chlorinated water before touching the women, because in his experience, this turned out to drop the mortality rate below 1%. Unfortunately, Semmelweis had no explanation for this very positive result. The doctors felt offended by him and reacted: 'Why should we do it differently? It has always been.' Blind statements like: 'The new is always better than the existing' only seem progressive, but in reality, are very close to classic dogmas. Also here, empirical research is needed to bring clarity.

With the discoveries of new tools and empirical research in the past 300 years, new observations asked for new interpretations, and as a result, many new conclusions emerged. In the past, it had to be accepted that the senses were the only tools to investigate. Theoretical interpretations of religions did not bring any deepening of knowledge and resulted in nothing but irrational dogmas. Dogmatic assumptions are no more than blocks against more essential insights. Unfortunately, this does not mean that dogmatic approaches have become part of history and do not occur anymore. They still emerge. During the corona-situation, this happened:

'*The faithful demanded in high tone access to one of the most important shrines of the Russian Orthodox Church, which had been shut down by order of the authorities because of the corona crisis. The outspoken conservative Moscow priest Dmitry Smirnov called for civil disobedience and secretly celebrated the Eucharist at night. 'The plague was also brought to a halt by the people receiving communion.'* [23]

Consciousness, an epiphenomenon or an active primitive

The notion that particles of consciousness exist is quite contrary to the view that consciousness is an epiphenomenon of energy. An essential consequence of the second view is that consciousness equals awareness. In the words of Susan Blackmore, 'consciousness is our first-person view of the world. It is private. According to the first notion, consciousness is a substance and so are the particles of consciousness, microvita[24]. In the materialist view that is supported by Blackmore, awareness is a subjective quality. Energy is the potential or skill to perform a work or effect change. The fundamental question is, what takes initiative to realise the potential in a specific situation[25]? Neither footballs nor kites, pens, brushes, cars, nor even computers, take initiative, they blindly follow the forces of nature and the instructions of intelligent minds. The only available principle with this capacity is consciousness in its local form, as the particles of consciousness. Consciousness is not an epiphenomenon, an unexplained side effect of something else, but a primitive.

If consciousness is not what Blackmore indicated, then what is it? Let me give it a try.

Consciousness is the single, primordial and all-pervading entity. It has an infinite creative potential of expression and simultaneously exists in all local and nonlocal forms. It not only is the designer of all abstract and concrete forms, but also partakes in their existence. The substance for that reality is the collection of its local form, microvita. Our universe, and all its objects, is in a continuous state of transformation. These included dynamics are not possible without the available energy of the operating principle. These two principles, consciousness and its operative principle, are an inalienable concomitance. None of them can stand without the other. However, the role of consciousness is foremost in all spheres. Consciousness is all-pervading, but the operative principle is not all-pervading and needs the shelter of consciousness. 'All-pervasiveness' has two extremes, one infinitely small and the other infinitely large. Infinitely small means granularity and infinitely vast means connectivity. The existence of its nonlocal characteristic implies that not even a single grain of consciousness can ever stand-alone and be separate.

Related ideas and a specific name

Neutral monism advocates the idea that the intrinsic nature of ultimate reality is neither mind nor matter. The list of what phenomena or noumena are not, can be very long, and still bring a useless or no answer to the question: 'What is the intrinsic nature of ultimate reality?'

Baruch de Spinoza stated that ultimately only one single, infinite substance exists for all forms, whether material or mental. He did bring up the subject of substance and concluded there was only one. For him, in his time, it was not yet possible to go deeper and see that all of reality is dynamic. Both material and mental forms, and their intrinsic substance need the energy that Spinoza did not include. Sometimes his approach is called 'existence monism,' sometimes 'neutral monism' and sometimes 'dual-aspect monism.' Relatively small differences between the three principles exist. All three are associated with Spinoza, and none of them includes the role of energy.

Like Spinoza, Shrii Sarkar mentions one substance for both concrete and abstract forms. Unlike Spinoza, Shrii Sarkar deals not only with the concept of substance, but also with the process of development from abstract to concrete forms and vice versa. He indicates that consciousness is the material cause of all forms. In the development of these forms, it is both the creative initiator and the designer[26]. But without the simultaneous involvement of the Operative Principle - or, simply put, energy - no abstract or concrete form can be developed and exist.

Essential in Shrii Sarkar's approach is not only the existence of two principles, consciousness and energy but also a description of their nature and their position concerning each other. They are opposites that complement each other continuously and without any restriction. I see a suitable metaphor for their existence as a bar magnet with its two opposites. Therefore, the word "**polarity**" is a more appropriate term than the names mentioned above: "existence monism," "neutral monism," or "dual-aspect monism."

Kite riders and appropriate lessons

Kite flying is a game with the forces of nature. Without enough wind or no wind at all, kite flying remains a dream. If the wind is just right, what makes a kite fly? Not its components, paper, wooden bars, rope or tail. It depends on the intelligence and know-how of the maker and skill of the kite rider. However, if the maker and the kite rider are not willing to spend enough energy on the making of the kite and the actual game will remain an idea.

The so-called viruses are in a similar position; they are a heterogeneous composition of atoms and molecules, yet, that does not mean a self-evident danger. What does make their presence dangerous is the fact that only crude, negative microvita are included. Their only interest is self-preservation and procreation. Benevolence is absent

What makes them so efficient? One reason must be their size[27]. However, in my opinion the danger is not so much in the number of atoms or bases, but in the number of mega molecules. If the number of atoms would be determinative, all atoms on our planet would carry this danger, which is not the case. The number of negative microvita included will be connected to the included macro molecules. The more energy is collected by a virus, a bacterium or cell, the more effect a positive or negative focus will have.

What is the origin of the Spanish flu?" Shrii Sarkar said: *'During the first World War the decaying bodies of dead soldiers attracted negative microvita from other stars and thus the influenza disease originated*.' As long as no investigation has been carried out, it may sound exotic. Until then, let us be open and alert.

The Spanish flu is referred to as a 'human' disease, which does not mean it is people-friendly. 'What in a virus makes it so?' In my opinion it could very well be 'human' because it emerged by the decaying bodies of dead soldiers. Also interesting information is: '*Negative microvita prefer the smell Tanmatra more than the sound Tanmatra*[28].*'* Compare the outbreak of the Spanish flu

with the outbreak of COVID-19 in China[29].

'The disease can be cured only when the numbers of positive microvita are increased and they devour the negative microvita.' Here 'devour' means 'destructive interference of waves.' After such interference both wave patterns will cease to exist. How to efficiently translate these ideas into a practical cure, still needs empiric research.

A, not yet tested idea, from 'Microvitum in a Nutshell.' '*Negative microvita, carried by the smell inference, cannot easily influence the mind of those who are engaged in elevating their minds through sadhana. Negative microvita cannot influence a person's mind at all when one's mind is moving in the higher cakras. They cannot even fully control the body, although they can have a negative influence, to some extent.*"

Conclusion

Diseases have plagued humanity for a long time. Physical consequences of a fall or drinking the wrong drink could be absorbed with some effort. Birds know that formic acid helps against insects, mites, fungi and bacteria. Süel's research also showed that bacteria have something like intuition or intelligence at home. Increasing communication on a global level has many advantages, but it also has the disadvantage that the chance of infection by diseases increases sharply. From the 14th century onwards, this meant a growing number of epidemics, without any chance of recovery. It also meant an impulse to fathom what was seen.

In the 17th century, Van Leeuwenhoek built the first compound microscope. He was the first to discover the existence of bacteria. Still, it took nearly another 250 years before Fleming, in 1928, discovered the first antibiotic, penicillin. In 1931 Ruska built the first electron microscope, which allowed an even more profound way inward. The first discovery was something called 'virus', the first being the tobacco virus. The first commercial microscopes were built from 1955. A new world of research awaits.

This new world will connect the already known, concrete reality with the abstract, the local with the non-local. In 1967, Shri Sarkar laid the foundation for the existence of a granular, complementary world with his book *Ananda Sutram*. From 1986 onwards, he gave many discourses with further details about the existence of creative consciousness particles with the name of '*microvita*,' singular '*microvitum*.' These *microvita*, unlike the already known quarks, neutrons and protons, electrons and photons, do have discrimination. They can and do take the initiative.

At the moment, such thoughts about that world are speculative at best. The sooner empirical research can begin, the better. *Microvita* are drivers of both chemical and biological forms. Units called viruses occur in the intermediate region. Those units that are threatening humanity right now have undeniably intelligence. They are relatively large shapes that respond intelligently and can transform quickly. They do not have any empathy, and benevolence is a closed world for them. According to Shrii Sarkar, one of the three forms of *microvita* comes within reach of a 'highly developed microscope.' The Coronavirus has obviously been photographed. However, this is no guarantee that also the negative *microvita* contained in the form can be photographed.

References

1. https://www.britannica.com/science/coronavirus-virus-group. Accessed: 6 May 2020.
2. https://www.toppr.com/ask/question/which-of-the-following-is-the-smallest-virus/. Accessed: 6 May 2020.
3. https://courses.lumenlearning.com/boundless-microbiology/chapter/overview-of-viruses. Accessed: 6 May 2020.
4. https://www.quora.com/What-is-the-size-of-a-single-atom. Accessed: 21 May 2020.

5. https://microbiologyinfo.com/different-size-shape-and-arrangement-of-bacterial-cells. Accessed: 21 May 2020.
6. https://openoregon.pressbooks.pub/mhccmajorsbio/chapter/comparing-prokaryotic-and-eukaryotic-cells. Accessed 21 May 2020.
7. Brock TD, Madigan MT, et al. 2003. *Biology of Microorganisms 10th Ed.* Nw Jersey: Pearson Education, p. 532.
8. https://www.ncbi.nlm.nih.gov/books/NBK7687/Accessed: 31 July 2020.
9. Margulis L, 2001. *The symbiotic planet.* Guernsey: The Guernsey Press Co. Ltd.
10. "The theory was dubbed SET, the acronym for Serial Endosymbiosis Theory." https://newatlas.com/medical/bacteria-eating-viruses-clear-infections-diabetic-foot-ulcers. Accessed: 6 August 2020.
11. https://apps.who.int/iris/bitstream/handle/10665/202495/WH_1980_May_p22-26_eng.pdf;jsessionid=0AF38B2B8D89964750C8CA6CF87ADB2?sequence=1. Accessed: 26 May 2010.
12. https://www.historyextra.com/period/medieval/black-death-plague-epidemic-facts-what-caused-rats-fleas-how-many-died. Accessed: 25 May 2020.
13. https://scalar.usc.edu/hc/tuberculosis-exhibit/scientific-discovery-of-streptomycin. Accessed:28 May 2020.
14. https://abcnews.go.com/Health/plague-exists-now-us/story?id=55860883. Accessed: 28 May 2020.
15. https://www.history.com/this-day-in-history/first-cases-reported-in-deadly-influenza-epidemic Accessed: 28 May 2020.
16. https://en.wikipedia.org/wiki/Spanish_flu. Accessed: 28 May 2020.
17. https://www.keyence.com/ss/products/microscope/bz-x/study/history/development.jsp. Accessed: 21 May 2020.
18. Sarkar Shrii PR. 1967. *Ananda Sutram*: Chapter 1. AMPS, EE7.5.2009. The literal text is: 'Brahma [Cosmic Entity] is the composite of Shiva [Consciousness] and Shakti [Operative Principle]."
19. ibid.
20. Aristotle. Physics, transl. -Waterfield R.1999. New York: Oxford University Press.
21. https://www.sciencedirect.com/science/article/abs/pii/S1878875019330402. Accessed: 24 august 2020.
22. https://riskacademy.blog/53-cognitive-biases-in-risk-management-semmelweis-reflex-alex-sidorenko. Accessed: 24 aug.2020.
23. Koerkamp G.G. 4 May 2020. *Daily Newspaper Trouw*.
24. Blackmore S. *Consciousness-An introduction.* London: CPI Group ltd.
25. https://www.technischwerken.nl/kennisbank/techniek-kennis/definitie-van-energie-wat-is-energie.Accessed: 24 August 2020.
26. Sarkar Shrii PR. 1967. *Ananda Sutram*: Sutras 1-1 and 1-2. AMPS, EE7.5.2009.
27. https://af.wikipedia.org/wiki/Koronavirus Accessed: 28 August 2020. 26-32 K base, the biggest for an RNS virus.
28. One hears or smells something and translates the striking wave patterns into something called positive, neutral or negative.
29. COVID-19 is an acronym for COronaVIrusDisease-2019. COMID-19 is my acronym for COronaMIcrovitaDisease-2019.

COVID-19: A complex immuno-thrombo-inflammatory disease

S. K. Verma[1*] and Nita Sahi[2]

[*1]Department of Medicine and [2] Department of Biochemistry,
Pacific Medical College & Hospitals, Udaipur, India
Email: skvermaster@gmail.com

Abstract

Coronavirus disease-2019 (COVID-19) is caused by the infection of SARS-CoV-2. After an average incubation period of 5 days, the disease begins with dry cough and low grade fever often associated with decrease or absence of smell or taste sensation. The disease remains mild or moderate in majority of patients and the symptoms resolve within a week. Those who remain symptomatic for long have a higher risk of developing more severe disease requiring hospitalization and ventilator support. The outcome of COVID-19, however, is often unpredictable, especially in elderly subjects with co-morbidities. It is a complex disease where the clinical spectrum swings between completely asymptomatic to rapidly devastating courses, and pathologically there is abnormal immunologic, inflammatory and thrombotic interactions involving practically all the organs of the body. The treatment till date is symptomatic and supportive.

Keywords: Cytokine storm, Interleukin-6, ORF 3a, Anosmia, Covid-toes

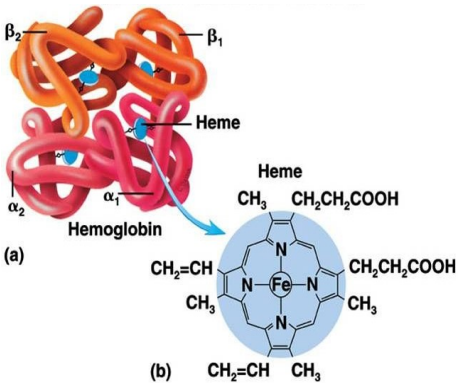
Introduction

COVID-19 started as an outbreak of pneumonia of unknown cause in Wuhan city; the capital of Hubei province in China in December 2019. The isolated virus was named as 2019-nCoV (2019 novel coronavirus) by WHO and later renamed SARS-CoV-2 by the International Committee on Taxonomy of Viruses[1]. Initially the disease was named as 2019-nCoV' acute respiratory disease (2019-nCoV AR) which was subsequently reclassified as coronavirus disease 2019 (COVID-19) by WHO[2].

COVID-19 causes mild or atypical illness in 82%, moderate to severe illness in 15% and critical illness in 3% of infected patients. It affects all age groups, predominantly males, with an average incubation period of five days (range 2 to 14 days)[3]. The virus spreads from human to human via large and small droplets and also from surface to humans. Virus enters through the mucous membrane of eyes, nose or mouth and the spike protein gets attached to the ACE-2 (Angiotensin Converting Enzyme-2) receptors. ACE-2 receptors are found in organs throughout the body like lungs, heart, nervous tissue, kidney, liver, blood vessels etc. and therefore, the COVID-19 presents a complex pattern in many patients[4].

The Severe Acute Respiratory Syndrome Coronavirus (SARS-CoV) in 2003 and Middle East Respiratory Syndrome Coronavirus (MERS-CoV) in 2012 have caused human epidemics. Both had much higher fatality rates, 40% in MERS-CoV and 10% in SARS-CoV. Notably, the current SARS-CoV-2 shares 79% of its genome with SARS-CoV, it appears to be much more transmissible but has relatively less fatality rate (0.3-0.6%)[5].

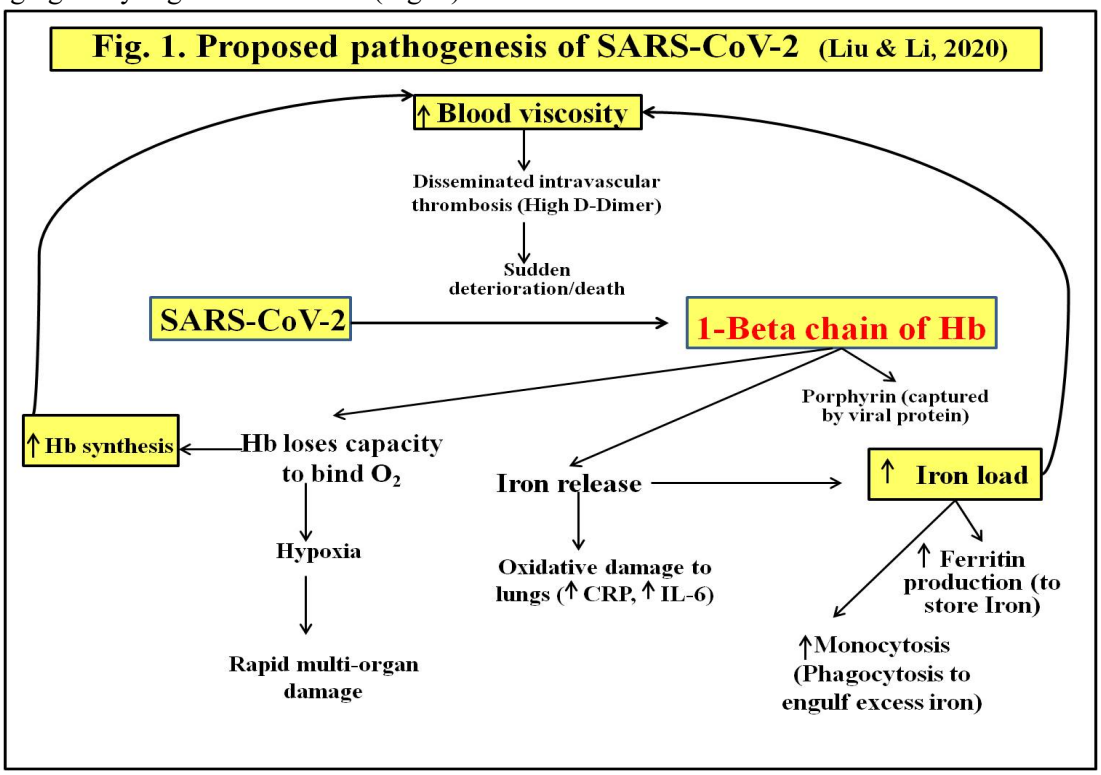
Pathogenesis



The SARS-CoV-2 first predominantly infects lower airways and binds to ACE-2 on alveolar epithelial cells[6]. Both SARS viruses are potent inducers of inflammatory cytokines. The 'cytokines storm' or 'cytokine cascade' is the postulated mechanism for organ damage. The virus activates immune cells and induces the secretion of inflammatory cytokines and chemokines into pulmonary vascular endothelial cells[7]. In-depth analysis of host responses to SARS-CoV-2 revealed a unique and inappropriate inflammatory response to SARS-CoV-2 which is imbalanced with regard to controlling virus replication versus activation of the adaptive immune response. This phenomenon is defined by low levels of Type I and III interferons juxtaposed to elevated chemokines and higher expressions of IL-6. It has been proposed that reduced innate antiviral defenses coupled with exuberant inflammatory cytokines production are the defining and driving features of COVID-19[8]. However, the pathogenicity of SARS-CoV-2 is not so simple, it still remains mysterious. There is also a reflection of abnormal phenomenon of Hb-related biochemical indices in patients with SARS-CoV-2 pneumonia.

Liu and Li conducted a study in which conserved domain analysis, homology modeling and molecular docking techniques were used to analyze the functions of SARS-CoV-2 related proteins. The conserved domain analysis showed envelope protein (E), nucleocapsid phosphoprotein (N) and ORF3a had heme linked sites. ORF3a could dissociate the iron of heme to form porphyrin. Heme linked sites of E protein may be relevant to the high infectivity and heme linked sites of N protein may be related to the Virus replication. The docking results showed that Orf1ab, ORF 10 and ORF 3a proteins coordinated to attack the 1-beta chain of hemoglobin and capture the porphyrin to inhibit heme metabolism. It would ultimately cause increasingly less hemoglobin that could carry oxygen and carbon dioxide, thereby producing symptoms of respiratory distress and coagulation reaction, damaging many organs and tissues[9] (Fig. 1).

Fig. 1. Proposed pathogenesis of SARS-CoV-2 (Liu & Li, 2020)



Furthermore, COVID-19 virus that attacked hemoglobin would yield iron, carbon dioxide, and oxygen, which might put both lungs tissue is a toxic and inflammatory state. This will lead to formation of multiple ground glass images on both sides of the lungs. These ground glass images are often associated with rapid and noticeable hypnoxemia[10].

Risk factors for severe disease with fatal outcome

COVID-19 has presented an extremely variable course. On one hand, the disease is completely asymptomatic while on the other hand, it is fulminating fatal. There are many risk factors which govern the severity of the disease.

1. **Age**

   Summary of a report of 72,314 cases from the Chinese Centre for Disease Control and Prevention (CDC) found that the overall death rate was 2.3 % among confirmed cases of COVID-19 while it was higher in older population (14.8% in case of 80 years and older)[11]. In almost all studies published throughout the world have reported that the age group of eighty years or older contributed to more than 90% of all death cases of COVID-19.

2. **Sex specific difference**

   Data from world around show that there is lower mortality in female patients and even the presence of co-morbidities have less impact in females[12]. The presence of subclinical systemic inflammation blunted immune system, down-regulation of ACE-2 and accelerated biological aging are the speculations for higher vulnerability in older men[13].

3. **Co-morbidities**

   Early studies from China also found that co-morbidities such as hypertension, cardiovascular disease and diabetes have been associated with severe disease and death[14]. Studies conducted outside China have found that obesity is also an important risk factor[15]. Chronic cardiac disease and chronic pulmonary disease have been independently associated with in-hospital mortality[16].

4. **Genetic susceptibility**

   Interestingly, in some cases, COVID-19 affects young and apparently healthy people where disease severity is neither caused by age nor by any co-morbidity. This remarkable heterogeneity of COVID-19 disease has led to the speculation that the idiosyncratic response of individual patient may be to some extent related to underlying genetic variations[17]. Following are some interesting reports directing towards genetic susceptibility-

   a) Case report from Iran of three brothers aged 54-66, all died of COVID-19 after less than two weeks of fulminating progress. Before COVID-19, all were healthy without any underlying illnesses[18].
   b) In postmortem of 21 COVID-19 cases showed that 65% of the patients had blood group ‘A’. The possible explanations of this correlation are (i) blood group ‘A’ may be associated with the failure of pulmonary microcirculation and coagulopathies and (ii) there might be direct interaction between antigen A and the viral S protein, thereby facilitating virus entry via ACE-2[19].
   c) There is some association between Apo Ee4e4 allele and COVID-19 severity. The Apo Ee4e4 allele increased risk of severe COVID-19 infection independently of pre-existing diseases[20].

In addition to the genetic predisposition, other potential reasons for a severe course are the amount of viral exposure, the route by which the virus enters to the body, the virulence of the pathogen and possible immunity from previous viral disease[4].

Complex clinical spectrum

A plethora of symptoms have been described which suggest that coronavirus disease-19 is not a simple viral infection but a complex disease, not only limited to respiratory system but also involving musculoskeletal, enteric, cardiovascular, neurologic and uncommonly muco-cutaneous structures (Fig.2).

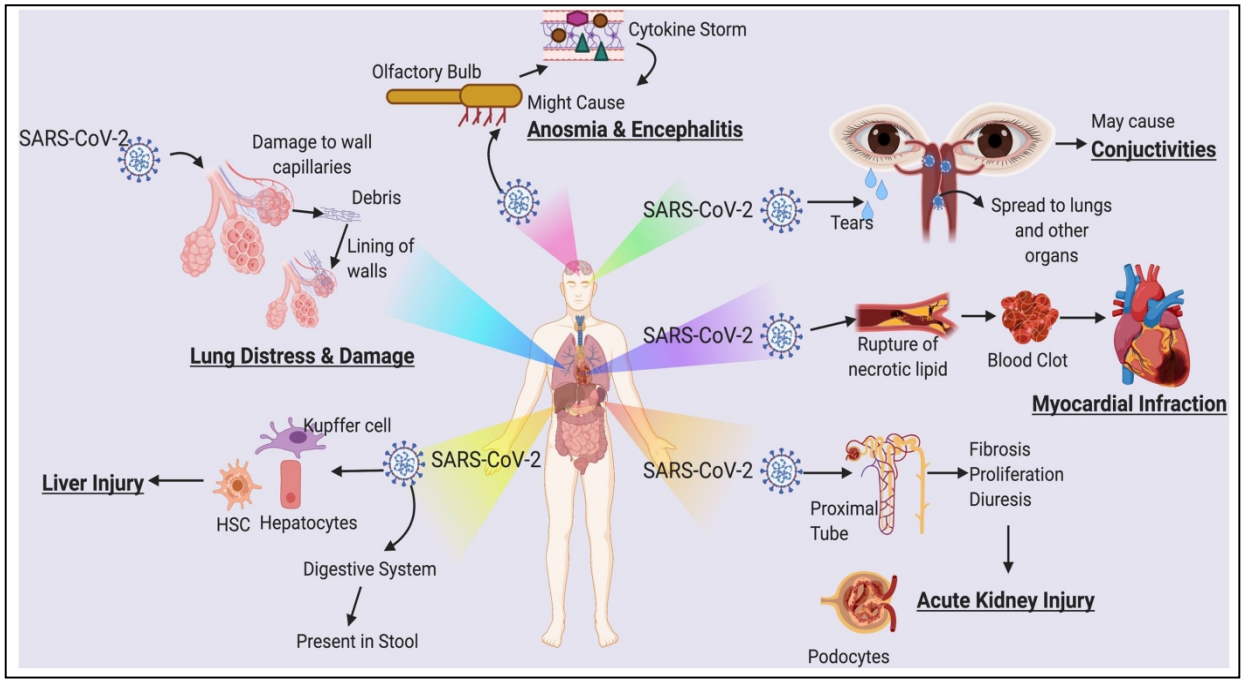


Figure 2: Effect of SARS-CoV-2 on human body (Source: Balachandar et al., 2020; *Sci. Tot. Env.* 729, 10 August 2020, 139021)

Respiratory symptomatology

COVID-19 patients present clinically with fever, dry cough and dyspnea. Fever is the most common symptom with median maximum of 38.3°C and the median duration of 12 days (8 to 13 days). However, fever alone may not be sufficient to detect cases in public surveillance. Cough is the second most symptoms occurring in about two-third of all patients and usually persists for 19 days (Inter-quartile range 12-23 days).

Figure 3: Lungs in COVID-19

In a meta-analysis of COVID-19 papers published until February 23, fever (88.7%), cough (57.6%) and dyspnea (45.6%) were the most prevalent clinical presentations[19]. Although fever and cough are the most common symptoms that do not differentiate between mild and severe cases nor do they predict the course of the disease. Dyspnea, however, has been identified as a strong predictor of severe disease[22]. CT chest shows bilateral ground glass appearance of lungs in patients having COVID-19 (Fig. 3).

Musculoskeletal symptoms

These include myalgia, joint pain, headache and fatigue in 15 to 40 % of patients[23]. These symptoms are disturbing but do not indicate the severity of disease. Headache has been observed in 11-34% of hospitalized COVID-19 patients and in 6-10% as a presenting symptom. It is moderate to severe, bilateral, pulsating or pressing quality, located in temporo-parietal, forehead or periorbital

regions. The most striking features are sudden to gradual onset and poor response to common analgesics[24].

Otorhinolaryngeal symptoms

Upper respiratory symptoms such as sneezing, nasal congestion, rhinorrhea and sore throat are relatively uncommon but ansomia and hyposmia are important signs of COVID-19[25]. These symptoms appear to be much more common in Europe than in Asia. In Europe, in one of the largest study, it was found that 87% patients reported loss of smell (anosmia) and 56% reported taste dysfunction[26]. The association of anosmia was so strong that it was said "Flu plus 'loss of smell' means COVID-19".

In another study on 263 patients presenting with flu like symptoms, loss of smell was found in 68% of COVID-19 patients compared to only 16% in negative patients. It has been concluded that smell and taste impairment were independently and strongly associated with COVID-19 positivity and the sore throat was independently associated with negativity[27]. Although these otorhinolaryngeal symptoms do not indicate severity of the disease yet are important indicators for SARS-CoV-2 infection.

Cardiovascular symptoms

Clinically, COVID-19 can manifest with an acute cardiovascular syndrome ("ACovCS") presenting not only with typical chest complaints, but also with very diverse cardiovascular manifestations where Troponin and D-dimer are important markers. The prevailing dictum during COVID-19 pandemic is that in patients a seemingly typical coronary heart syndrome, COVID-19 should also be considered in the differential diagnosis, even in the absence of fever or cough[28-29].

SARS-CoV-2 has the potential to infect cardiomyocytes, pericytes and fibroblasts via the ACE-2 receptor pathway leading to myocardial injury[30]. Moreover, myocardial injury may be related to cytokine excess and/or antibody mediated mechanisms[31]. It is also possible that there may be direct SARS-CoV-2 infection of the endothelium because ACE-2 receptor is widely expressed on these cells also leading to diffuse endothelial inflammation (endotheliitis). Post-mortem study does indicate a strong virus induced vascular dysfunction[19].

Whatever the mechanism may be, there is growing evidence that heart is directly or indirectly affected by SARS-CoV-2 infection especially in patients with pre-existing heart disease[32].

Coagulation abnormalities

Coagulation abnormalities occur frequently in patients with COVID-19. Incredibly higher number of venous thrombo-embolism especially in these with sever COVID-19 have been reported. The initial coagulopathy of COVID-19 presents with prominent elevation of D-dimer and fibrin/fibrinogen degradation products (FDPs), while abnormalities in prothrombin time, partial thromboplastin time and platelet count are relatively uncommon. Measurements of D-dimer and fibrinogen levels are the suggested coagulation screening tests[33]. Exact mechanisms are not clear but there is possibility of *de novo* coagulopathy in these patients with COVID-19[4].

Gastrointestinal symptoms

Gastrointestinal symptoms were rarely observed in early Chinese studies. Among the first 393 consecutive patients admitted to two hospitals in New York City, diarrhoea (24%) and nausea and vomiting (19%) were relatively frequent[15]. Cell experiments have shown that SARS-CoV and SARS-CoV-2 are able to infect enterocytes and active replication has been shown in both bats and human intestinal organoids[34].

Neurologic symptoms

Human coronaviruses have neuro-invasive propensity. This viral neuro-invasion may be achieved by several routes such as trans-synaptic transfer, entry via the olfactory nerve, infection of vascular endothelium or leukocyte migration across the blood-brain barrier[35].

In a retrospective observational case series, neurological manifestations were observed in 36% of patients of COVID-19; ranging from fairly specific symptoms (loss of sense of smell or taste, myopathy, encephalopathy and stroke) to non specific symptoms (headache, low consciousness, dizziness or seizures)[36]. Besides these symptoms, there are several observational series of specific neurologic features such as Guillain-Barre syndrome[37] and Miller fisher syndrome and polyneuritis cranialis[38].

Cutaneous manifestations

There are several reports of dermatological involvement in SARS-CoV-2 infection. The most prominent phenomena "COVID toes" are chilblain like regions mainly at acral areas, can be painful and may represent the only symptom or late manifestations of COVID-19. The point of interest is that in most patients with "COVID toes" (Fig. 4), the disease is only mild-to-moderate. It is not yet clear whether 'COVID toes' represent a coagulation disorder or hypersensitive reaction[4].

Figure 4: "COVID toes"

Galvan and associates have described five clinical cutaneous lesions; acral areas of erythema with vesicles or pustules (pseudo chilblain)-19%, other vesicular eruptions (9%), urticarial lesions (19%), maculopapular eruptions (47%) and livedo or necrosis (6%)[39].

Hepato-renal involvement

SARS-CoV-2 has an organotropism beyond the respiratory tract and includes kidney and liver.

Renal tropism

SARS-CoV-2 viral load has been detected in all the compartments of kidney with preferential targeting of glomerular cells. Renal tropism is a potential explanation of commonly reported new clinical signs of kidney injury in COVID-19 patients even in patients with SARS-CoV-2 infection who are not critically ill[40].

Recent data indicate that renal involvement is more frequent than described in early studies. Argenziano and associates reported that in 236 patients who were admitted or transferred to Intensive Care units; 78% developed acute kidney injury and 35.2% needed dialysis[41].

Hepatic injury

Evaluation of liver injury in 2273 SARS-CoV-2 positive patients reveal that 45% had mild, 21% moderate and 6.4% severe liver injury. Severe acute liver injury was significantly associated with elevated inflammatory markers including ferritin and IL-6[42].

Ocular involvement

Ocular manifestations are common (32%) and more common in severe COVID-19 cases. These include conjunctival hyperemia, chemosis, epiphora, or increased secretions consistent with conjunctivitis. Even two patients had positive PCR results from conjunctival swabs[43]. Optical Coherence Tomography (OCT) has shown the involvement of retina as well.

Laboratory reflection of severity

It is now clear that COVID-19 is a complex disease involving all the major systems of the body. Patients with severe disease, because of multisystem involvement have many prominent laboratory abnormalities than those with non-severe disease[4].

The common laboratory risk parameters are:

- Elevated CRP, procalcitonin, interleukin-6 and ferritin

- Lymphocytopenia, CD4 T cell and CD8 T cell depletion, Leukocytosis
- Elevated D-dimer and troponin
- Elevated LDH

Clinical classification of severity of COVID-19

There is no well accepted or valid clinical classification to categorize the patients of COVID-19 based on the severity of disease. The first large clinical study distinguished between severe and non-severe cases[14] according to the diagnosis and treatment guidelines for adults with community-acquired pneumonia published jointly by the American Thoracic Society and Infectious Diseases Society of America[44].

Severe cases include either one major criterion or three or more minor criteria.

Major criteria

- Septic shock with need for vasopressors
- Respiratory failure requiring mechanical ventilation

Minor criteria

- Respiratory Rate > 30/min
- $PaO_2/F1O_2$ Ratio < 250
- Multi-lobar infiltrates
- Confusion/disorientation
- Uremia
- Leukopenia
- Thrombocytopenia
- Hypothermia
- Hypotension requiring aggressive fluid resuscitation

Wang and associates[45] have used the following classification-

1. *Mild cases:* Clinical symptoms were mild without pneumonia manifesting through image results
2. *Ordinary cases*: Having fever and other respiratory symptoms with pneumonia manifesting through image results
3. *Severe cases*: Meeting any one of the following: respiratory distress, hypoxia (SpO_2 <93%), abnormal gas analysis (PaO_2 < 60 mmHg, $PaCO_2$> 50 mmHg)
4. *Critical cases*: Meeting any one of the following: respiratory failure which require mechanical ventilation, shock accompanied by other organ failure that needs ICU monitoring and treatment

Wu and McGoogan in the report of the Chinese CDC for the estimation of disease severity used almost the same categories as described by Wang and associates; although number 1 (mild cases) and number 2 (ordinary cases) were combined to mild cases category[9].

Mild - Non-pneumonia and mild pneumonic

Severe - Dyspnea respiratory frequency 30> min, blood oxygen saturation < 93%, partial pressure of arterial oxygen to fraction of inspired oxygen ratio < 300 and/or lung infiltrates > 50% within 24 to 48 hrs.

Critical - Respiratory failure, septic shock and or multiple organ dysfunction or failure.

In a nutshell, COVID-19 is not just a respiratory tract infection of SARS-CoV-2 but it can involve all the organs of the body especially where the viral load is much more and the person is compromised because of age and other co-morbid conditions. It is in fact a complex disease process involving the abnormal immunogenic response leading to widespread inflammatory and thrombogenic process affecting the major organs of the body leading to multi-organ failure. The disease is new to humanity and the medical science is still in the process of learning about COVID-19 and searching the possibility of developing vaccine against SARS-CoV-2 infection.

References

1. Coronavirus Study Group of The International Committee on Taxonomy of Viruses the Species Severe Acute Respiratory Syndrome related Coronavirus: Classifying 2019-nCoV and naming it SARS-CoV-2. 2020. *Nat microbiol*. 5(4): 536-544.
2. Naming the coronavirus disease (COVID-19) and the virus that causes it. WHO, 18th May 2020.
3. Linton NM, Kobayashi T, Yang Y, et al. 2020. Incubation period and other epidemiological characteristics of 2019 Nobel coronavirus infection with right truncation: A statistical analysis of publicly available case data. *J. Clin. Med*. 9(2):538.
4. Kamps BS & Hoffman C. 2020. COVID REFERENCE. 4th edition. Steinhauser Verlag.
5. CDC COVID-19 Response Team. 2020. Characteristics of health care personnel with COVID-19 - United States. *MMWR Morb Mortal Wkly Rep*. 69(15):477-481.
6. Wan Y, Shang J, Graham R, Baric RS, Li F. 2020. Receptor recognition by novel coronavirus from Wuhan: An analysis based on decade-long structural studies of SARS. *J. Virol*. 94(7):e00127-20.
7. Jiang F, Deng L, Zhang L, Cai Y, Cheung CW, Xia Z. 2020. Review of the clinical characteristics of Coronavirus Disease 2019 (COVID-19). *J Gen Intern Med*. 35(5):1545-49.
8. Blanco-Melo D, Nilsson-Payant BE, Liu WC, et al. 2020. Imbalanced host response to SARS-CoV-2 drives development of COVID-19. *Cell*. 181(5):1036-1045.e9.
9. Liu W & Li H. 2020. COVID-19: Attacks the 1-Beta Chain of Hemoglobin and Captures the Porphyrin to Inhibit Human Heme Metabolism. *ChemRxiv*. Preprint. https://doi.org/10.26434/chemrxiv.11938173.v9
10. Lei J, Li J, Li X, Qi X. 2020. CT Imaging of the 2019 Novel Coronavirus (2019-nCoV) Pneumonia. *Radiology*. 295(1):18. doi: 10.1148/radiol.2020200236.
11. Wu Z & McGoogan JM. 2020. Characteristics of and important lessons from the Coronavirus Disease 2019 (COVID-19) Outbreak in China: Summary of a Report of 72 314 Cases from the Chinese Center for Disease Control and Prevention. *JAMA*. 323(13):1239-42.
12. Meng Y, Wu P, Lu W, et al. 2020. Sex-specific clinical characteristics and prognosis of coronavirus disease-19 infection in Wuhan, China: A retrospective study of 168 severe patients. *PLoS Pathog*. 16(4):e1008520.
13. Bonafè M, Prattichizzo F, Giuliani A, Storci G, Sabbatinelli J, Olivieri F. 2020. Inflamm-aging: Why older men are the most susceptible to SARS-CoV-2 complicated outcomes. *Cytokine Growth Factor Rev*. 53:33-37.
14. Guan WJ, Ni ZY, Hu Y, Liang WH, et al. 2020. Clinical characteristics of coronavirus disease 2019 in China. *N. Engl. J. Med*. 382: 1708- 20.
15. Goyal P, Choi JJ, Pinheiro LC, et al. 2020. Clinical Characteristics of Covid-19 in New York City. *N Engl J Med*. 382(24):2372-74.

16. Cummings MJ, Baldwin MR, Abrams D, et al. 2020. Epidemiology, clinical course, and outcomes of critically ill adults with COVID-19 in New York City: a prospective cohort study. *Lancet*. https://doi.org/10.1016/S0140-6736(20)31189-2
17. von der Thüsen J & van der Eerden M. 2020. Histopathology and genetic susceptibility in COVID-19 pneumonia. *Eur J Clin Invest*. e13259. doi:10.1111/eci.13259
18. Yousefzadegan S & Rezaei N. 2020. Case Report: Death due to COVID-19 in Three Brothers. *Am J Trop Med Hyg*. 102(6):1203-04. doi:10.4269/ajtmh.20-0240
19. Menter T, Haslbauer JD, Nienhold R, et al. 2020. Postmortem examination of COVID-19 patients reveals diffuse alveolar damage with severe capillary congestion and variegated findings in lungs and other organs suggesting vascular dysfunction. *Histopathology*. 10.1111/his.14134. doi:10.1111/his.14134
20. Kuo CL, Pilling LC, Atkins JL, et al. 2020. APOE e4 genotype predicts severe COVID-19 in the UK Biobank community cohort. *J Gerontol A Biol Sci Med Sci*. glaa131. doi:10.1093/gerona/glaa131
21. Rodriguez-Morales AJ, Cardona-Ospina JA, Gutiérrez-Ocampo E, et al. 2020. Clinical, laboratory and imaging features of COVID-19: A systematic review and meta-analysis. *Travel Med Infect Dis*. 34:101623. doi:10.1016/j.tmaid.2020.101623
22. Chen R, Liang W, Jiang M, et al. 2020. Risk factors of fatal outcome in hospitalized subjects with Coronavirus Disease 2019 from a Nationwide analysis in China. *Chest*. 158(1):97-105.
23. Docherty AB, Harrison EM, Green CA, et al. 2020. Features of 20 133 UK patients in hospital with covid-19 using the ISARIC WHO Clinical Characterisation Protocol: prospective observational cohort study. *BMJ*.369:m1985
24. Bolay H, Gül A, Baykan B. 2020. COVID-19 is a Real Headache! *Headache*. 2020;10.1111/head.13856. doi:10.1111/head.13856
25. Lüers JC, Klußmann JP, Guntinas-Lichius O. 2020.The COVID-19 pandemic and otolaryngology: What it comes down to? *Laryngo- Rhino- Otologie*. 99(5):287-291.
26. Lechien JR, Chiesa-Estomba CM, Hans S, et al. 2020. Loss of smell and taste in 2013 European patients with mild to moderate COVID-19. *Ann Intern Med*. 10.7326/M20-2428.
27. Yan CH, Faraji F, Prajapati DP, Boone CE, DeConde AS. 2020. Association of chemosensory dysfunction and COVID-19 in patients presenting with influenza-like symptoms. *Int Forum Allergy Rhinol*. 10(7):806-13.
28. Fried JA, Ramasubbu K, Bhatt R, et al. 2020. The Variety of Cardiovascular Presentations of COVID-19. *Circulation*. 141(23):1930-36.
29. Inciardi RM, Lupi L, Zaccone G, et al. 2020. Cardiac involvement in a patient with Coronavirus Disease 2019 (COVID-19). *JAMA Cardiol*. 5(7):819-824.
30. Hendren NS, Drazner MH, Bozkurt B, Cooper LT Jr. 2020. Description and proposed management of the acute COVID-19 cardiovascular syndrome. *Circulation*. 141(23):1903-14.
31. Varga Z, Flammer AJ, Steiger P, et al. 2020. Endothelial cell infection and endotheliitis in COVID-19. *Lancet*. 395(10234): 1417-18.
32. Bonow RO, Fonarow GC, O'Gara PT, Yancy CW. 2020. Association of Coronavirus Disease 2019 (COVID-19) With Myocardial Injury and Mortality. *JAMA Cardiol*. 5(7):751-753.
33. Connors JM, Levy JH. 2020. COVID-19 and its implications for thrombosis and anticoagulation. *Blood*. 135(23):2033-40.
34. Zhou J, Li C, Liu X, et al. 2020. Infection of bat and human intestinal organoids by SARS-CoV-2. *Nat Med*. 26(7):1077-83.

35. Zubair AS, McAlpine LS, Gardin T, et al. 2020. Neuropathogenesis and neurologic manifestations of the Coronaviruses in the age of Coronavirus Disease 2019: A Review. *JAMA Neurol*. 77(8):1018-27.
36. Mao L, Jin H, Wang M, et al. 2020. Neurologic manifestations of hospitalized patients with Coronavirus Disease 2019 in Wuhan, China. *JAMA Neurol*. 77(6):683-90.
37. Toscano G, Palmerini F, Ravaglia S, et al. 2020. Guillain-Barré Syndrome associated with SARS-CoV-2. *N Engl J Med*. 382(26):2574-76.
38. Gutiérrez-Ortiz C, Méndez-Guerrero A, Rodrigo-Rey S, et al. 2020. Miller Fisher syndrome and polyneuritis cranialis in COVID-19. *Neurology*. 95(5):e601-e605.
39. Galván Casas C, Català A, Carretero Hernández G, et al. 2020. Classification of the cutaneous manifestations of COVID-19: a rapid prospective nationwide consensus study in Spain with 375 cases. *Br J Dermatol*. 183(1):71-77.
40. Zhou F, Yu T, Du R, et al. 2020. Clinical course and risk factors for mortality of adult inpatients with COVID-19 in Wuhan, China: a retrospective cohort study. correction appears in *Lancet*. 2020 Mar 28; 395(10229):1038
41. Argenziano MG, Bruce SL, Slater CL, et al. 2020. Characterization and clinical course of 1,000 patients with coronavirus disease 2019 in New York: Retrospective case series. *BMJ*. 369:m1996.doi: 10.1136/bmj.m1996.
42. Phipps MM, Barraza LH, LaSota ED, et al. 2020. Acute liver injury in COVID-19: Prevalence and association with clinical outcomes in a large US Cohort. *Hepatology*. 10.1002/hep.31404. doi:10.1002/hep.31404
43. Wu P, Duan F, Luo C, et al. 2020. Characteristics of ocular findings of patients with Coronavirus Disease 2019 (COVID-19) in Hubei Province, China. *JAMA Ophthalmol*. 138(5):575-78.
44. Metlay JP, Waterer GW, Long AC, et al. 2019. Diagnosis and treatment of adults with community-acquired pneumonia. An official Clinical Practice Guideline of the American Thoracic Society and Infectious Diseases Society of America. *Am J Respir Crit Care Med*. 200(7):e45-e67.
45. Wang Y, Tong J, Qin Y, et al. 2020. Characterization of an asymptomatic cohort of SARS-COV-2 infected individuals outside of Wuhan, China. *Clin Infect Dis*. ciaa629. doi:10.1093/cid/ciaa629

Obituary

SMRIM is deeply aggrieved to inform the sudden demise of Shrii. G. L. Verma, Retd. Deputy Director National Institute of Rural Development and Panchyati Raj, Hyderabad who was an active member and promoter of SMRIM, Udaipur.

SMRIM extends heartfelt condolences to all the family members. May Almighty give them power to endure this irrecoverable loss.

Short communication

Wastewater analysis for early prediction of epidemic outbreak

Vartika Jain

Department of Botany, Govt. Meera Girls' College, Udaipur, Rajasthan, India
Email: vartikabotany@gmail.com

Wastewater based epidemiology has shown its importance in monitoring drug consumption, pesticide or heavy metal uses and chemical pollutants in food. It could also be utilized for prevention and early prediction of onset of infectious diseases which keeps significance in population health[1].

The recent COVID-19 pandemic which is caused by virus namely SARS-CoV-2 has shown its replication in enterocytes of human intestines and observed in feces. Various studies world over have shown presence of genetic material (RNA) of SARS-CoV-2 in feces and urine of both symptomatic and asymptomatic individuals[2]. It has also been shown that the viral RNA remains for longer duration (median, 22 days) in fecal matter rather than for 18 days in respiratory airways and 16 days in serum samples even after recovery from respiratory symptoms[3]. This fecal matter reaches a wastewater treatment plant through sewage pipes in many countries.

Detection of SARS-CoV-2 RNA has been detected in wastewater in Australia, Italy, Paris, Japan, Spain, and the Netherlands[4-9]. Improved technologies are being developed for extraction of pathogen from the wastewater and their detection in minutest quantity[10]. Wastewater surveillance thus, could be helpful in early indication of possible outbreaks of infectious disease in a community. However, evaluation of untreated wastewater-contaminated drinking water in spreading of COVID-19 should also be assessed.

References

1. Mao K, Zhang K, Du W, et al. 2020. The potential of wastewater-based epidemiology as surveillance and early warning of infectious disease outbreaks Curr. Opin. Environ. Sci. Health, 17:1–7.
2. Orive G, Lertxundi U, Barcelo D. 2020. Early SARS-CoV-2 outbreak detection by sewage-based epidemiology. *Sci Total Environ*. 732:139298. doi:10.1016/j.scitotenv.2020.139298
3. Zheng S, Fan J, Feng B, et al. 2020. Viral load dynamics and disease severity in patients infected with SARS-CoV-2 in Zhejiang province, China, January–March 2020: retrospective cohort study. *BMJ*. 369:m1443. doi: 10.1136/bmj.m1443
4. Ahmed W, Angel N, Edson J, et al., 2020. First confirmed detection of SARS-CoV-2 in untreated wastewater in Australia: a proof of concept for the wastewater surveillance of COVID-19 in the community. *Sci. Total Environ*. https://doi.org/10.1016/j.scitotenv.2020.138764.
5. Medema G, Heijnen L, Elsinga G, Italiaander R, Brouwer A. 2020. Presence of SARSCoronavirus-2 RNA in sewage and correlation with reported COVID-19 prevalence in the early stage of the epidemic in the Netherlands. *Environ. Sci. Technol. Lett*. https://doi.org/10.1021/acs.estlett.0c00357.
6. La Rosa G, Iaconelli M, Mancini A, et al. 2020. First detection of SARS-CoV-2 in untreated wastewaters in Italy. *Sci. Total Environ*. 736, 139652. https://doi.org/10.1016/j.scitotenv.2020.139652.
7. Randazzo W, Truchado P, Cuevas-Ferrando E, et al. 2020. SARS-CoV-2 RNA in wastewater anticipated COVID-19 occurrence in a low prevalence area. *Water Res*.https://doi.org/10.1016/j.watres.2020.115942.
8. Haramoto E, Mallaa B, Thakali O, Kitajima M. 2020. First environmental surveillance for the presence of SARS-CoV-2 RNA in wastewater and river water in Japan. *Sci. Total Environ.* 737: 140405
9. Lapolla P, Lee R, Mingoli A. 2020. Wastewater as a red flag in COVID-19 spread. *Public Health*. 185: 26.
10. Wu F, Zhang J, Xiao A, et al. 2020. SARS-CoV-2 Titers in Wastewater are higher than expected from clinically confirmed cases. *Eric J. Alm. mSystems*. 5(4) e0061420. DOI: 10.1128/mSystems.00614-20

Secretarial Desk

Global Cyber Meet on Gurukul Foundation Day

A Global Cyber Meet was organized by Dada Shambhúshivánanda, Chancellor, AMGK on 6th September, 2020 on the eve of 30th anniversary of founding of AMGK as Gurukul was founded on 7th September, 1990 by Shrii P.R. Sarkar. This historic cyber meeting was started by Mahajyoti Glassman, Retd. Director, Morning star Yoga Pre-school on Zoom online platform. Ac. Dr. Shambhúshivánanda welcomed all the participants and presented the concept note for organization of the get-together. He also mentioned that the concept of Microvita as given by Shrii Sarkar in 1986 is being propagated by Society for Microvita Research and Integrated Medicine (SMRIM), Udaipur founded by Dr. S. K. Verma in India.

Meeting was started with the Welcome Gurukula Song '*Amra Gare nob Gurukul*…' which is the last *Prabha`t Samgiita* No. 5018, written and composed by Shrii P.R. Sarkar. Keynote speeches were given by Prof. Sohail Inayatullah, UNESCO Chair in Future Studies from Australia and Dr. Kathleen Kesson distinguished Professor of Education who shared their insight for the advancement of Neohumanist movement and futuristic studies. There were four sessions in which 18 eminent speakers put their works and shared thoughts showing the ways to realize the vision of Shrii P.R. Sarkar to make this planet Earth habitable in a sustainable way for future.

Theme of the first Session was 'Neohumanism, Science and Microvita' which was moderated by Dr Sid Jordan, President, AMGK from USA. Speakers of the first session were Dr. Marcus Bussey from University of Sunshine coast, Queensland, Australia, Dr. Michael Towsey from Queensland University of Technology in Australia, Dr. Hans-Joachim Rudolph from Microvita Research Institute, Berlin and Dr. Vartika Jain, Secretary, Society for Microvita Research and Integrated Medicine (SMRIM), Udaipur, India who briefed about various activities of SMRIM since its conception in 2008.

Second Session was devoted to Socio-Economics/Global Perspectives of thoughts of Shrii Sarkar and it was moderated by Dada Shambhúshivánanda. The main speakers of this session were Prof. Ravi Batra, Well known personality in the field of Economics from Southern Methodist University, Dallas, USA, Prof. Edward McKenna from Connecticut College in New London, CT, USA, Shrii Khun Krisada Kampanatsanyakorn, Chairman, Cellenium and Thai Gypsum, Bangkok Thailand, Craig Runde and Dr. Howard Nemon, Executive Director of the Prama Institute.

Theme of the third Session was Neo-humanisitic Education Initiatives and the session was moderated by Didi Ananda Devapriya. The main speakers of the session were Rutger Tamminga from Taiwan, Christian Franceschini, Director of the Italian National Yoga and Intuitive Sciences Academy, Linda Baker from USA, Eric Jacobson from Progressive School of Long Island, USA and Dr. Sunandita Bhowmik from Cooch Behar Panchanan Barma University, West Bengal, India. Dr. Richard Maxwell from New York, USA moderated the fourth Session on the theme "Spiritual Sciences-Research and Practice" and speakers were Prof. Ram Nath Jha from Jawaharlal Nehru University, New Delhi, Dr. Sucharit Katyal, Neuroscientist from USA, Dr. Jyoshna la Trobe and Dada Vishvarupananda.

Meeting was ended by closing remarks from Dr Sid Jordan, Arete Brim and Dada Shambhúshivánanda. Meeting was successful in maximum cross-pollination of ideas, spreading good news through succinct comments by Gurukula scholars and Neohumanist practitioners from around the globe and discussed the future activities as suggested by Shrii P. R. Sarkar which are very relevant for rejuvenation of collapsing Economic and Education system in the World.

What is Microvita ?

Microvita:

Micro- Small, *Vita*- Living

Definition:

Entities or objects which come within the realm of both physicality and psychic expressions, which are smaller or subtler than atoms, electrons or protons; and in the psychic realm, may be subtler than ectoplasm or its extra-psychic coverage; endoplasm have been termed as "Microvita" (Singular- *Microvitum*) by Shrii P. R. Sarkar.

Physicality: The position of microvita is just between ectoplasm and electron, but they are neither ectoplasm nor electron.

Categories:

A) Based on density or subtlety -

First: Coming within the scope of a highly developed microscope.

Second: Not coming within the scope of a perception but coming within the scope of perception as a result of their expression or actional vibration.

Third: Not coming within the scope of common perception but coming within the scope of a special type of perception which is actually the reflection of conception within the periphery of perception.

B) Based on nature -

1. Positive 2. Negative 3. Neutral/Ordinary

Movement:

- Move throughout the entire universe.
- Move unbarred, without caring for the atmospheric conditions.
- Move through a medium or media sound, form, figure, smell, tactuality or ideas.

Root cause of life:

Microvita create minds and bodies and also destroy minds and physical bodies. The root cause of life is not the unicellular protozoa or unit protoplasmic cell, but this unit microvitum.

Aims and Objectives of SMRIM

1. To propagate the knowledge and science of microvita by psycho-spiritual practice in individual and collective life.

2. To increase moral values, to generate scientific thinking, to remove dogma with the spread of knowledge of microvita at School, College and University levels.

3. To initiate and inspire about research on Yogic, Vaedic, Naturopathic, Ayurvedic and Homoeopathic schools of medicine.

4. To incorporate faculty of Physics, Chemistry, Botany and Medicine for research on microvita and integrated medicine; including research on medicinal plants and Homoeopathic medicine.

5. To organize free medical camps in villages and cities involving specialists of different system of medicine.

6. To publish result of the research in national and international journals and interact with other people working in the field in and out of the country.

7. To make judicious use of different systems of medicine and microvita for the treatment of diabetes, hypertension, heart diseases, cancer and diseases of modern era.

8. To establish laboratory and research centers for relentless research on microvita and integrated medicine for the welfare of entire humanity.

Who can join?

Any person interested in serving humanity through research on Microvita and Integrated medicine and abides rules and regulations of the society can become the member of the society.

Life Membership fee: Rs. 2000/- (Rupees Two thousand only for Once)

Bulletin on Microvita Research and Integrated Medicine started in March, 2009 is an official peer reviewed Journal of Society for Microvita Research and Integrated Medicine (SMRIM), Udaipur, Rajasthan. It publishes three issues in a year having original research, reviews, short notes, case studies, Letter to editor in the field of microvita and integrated medicine in both hard and soft copies. Book reviews are published after approval by Editor. The Journal does not levy any Article Processing Charges or Article Submission Charges. Previous issues are available online at : www.microvitamedresearch.com

Instructions to Authors

Preparation of the Manuscript

Manuscripts should be typed in double space (12 pt, Times New Roman font) on one side of the paper of 22×28 cm. All pages should be numbered consecutively. SI units should be used and Symbols should conform to standard guidelines.

Title

It should be short & informative (14 pt), to be typed in only first letter of the first word capital; also, after colon or hyphen, first letter of the first word capital. Latin names are to be given in italics.

Keywords

Four to five keywords (in normal; 11 pt) should be given indicating the contents of the manuscript.

Authors

Names of authors to be typed in first letters capital (12 pt).

Addresses of Authors

Addresses of the affiliating institution (s) along with e-mail address (10 pt) should be given.

Main Headings

Each manuscript should be divided into the following main headings (typed in bold, first letters capital, on the left hand side of the page; 12 pt): Abstract, Introduction, Methodology, Results, Discussion, Acknowledgement, References.

Sub-Headings

Typed in flush left, bold, first letters capital (10 pt).

Abstract

It should be brief within the limit of 200 words and typed in normal font (11 pt).

Introduction

A brief and precise literature review with objectives of the research undertaken and essential background could be given.

Methodology

Methodology should include location of survey area, the source and nature of material, experimental design and the techniques employed.

Results

Results should contain data, which are essential for drawing main conclusion from the study. Wherever needed, the data should be statistically analyzed. Same data should not be presented in both table and figure form.

Discussion

The discussion should deal the interpretation of the results. Wherever possible, results and discussion can be combined.

Tables

Tables should be typed in double space on separate sheets and numbered consecutively. Table headings should be typed with the first letter capital (12 pt).

Figures

Relevant good quality illustrations/ photographs/line drawings etc. could be sent in JPEG format through email. Text figures should be numbered in Arabic numerals. Lettering, numbering, symbols and lines in the graphs/illustrations should be sufficiently clear. Captions and legends to illustrations should be typed on a separate sheet of paper.

Acknowledgement

Acknowledgements should be made in brief.

References

References should be cited in the text by the consecutive **numbers** of their occurrence; the numbers are to be shown as superscript at the end of the statement related to that particular reference, **e.g.** Microvita are mysterious emanations from Supreme Consciousness[1]. Following the same sequence of the text, the list of references should be appended under the **References** heading. Each reference should provide names and initials of all the authors, giving coma in between the authors. In case, the authors are more than five, then use *et al* after the 5th author. It should be followed by year of publication, title of the paper, abbreviated title of journal (in italics)/ book title in italics, volume number, issue number and the starting and closing page numbers. Abbreviated titles should conform to the international guidelines, e.g. The Chemical Abstracts Service Source Index (CASSI) or BIOSIS. The style of references should be:

Research Papers

1. Verma SK. 2016. Microvitopathy. *Bull. Microvita Res. Integr. Med*. 8(1-3):3.

Books

1. Sarkar PR. 1987. *Microvita in a Nutshell*. p.56. AMPS Publ., Tiljala, Kolkata.
2. Jain V. & Jain SK. 2016. *Compendium of Indian Folk Medicine and Ethnobotany (1991-2015)*, pp. 1-542. Deep Publ., New Delhi.
3. Jain V. 2017. Chapter 5.1: A glimpse of culture-based man-plant relationships in Indian folk life. In: *Methods and Approaches in Ethnobotany* (*Concepts, Practices and Prospects*) (Ed. Jain SK and Jain V), pp. 151-157. Deep Publ., New Delhi.

Paper along with referees' comments will be sent to the corresponding author through email which should be checked carefully and returned after modifications within five days of receipt. No page proofs will be sent to author(s).

PDF of the issue in which the article is published will be provided to the author via e-mail.

The language of the Journal is English. However, there is also scope for few articles in Hindi in every issue. Book reviews and papers neatly typed, double spaced, with margins on all sides along with photographs (if any) may be submitted through E-mail at: skvermaster@gmail.com

All correspondence regarding Journal should be sent to:

Dr. S. K. Verma
Chief Editor, BOMRIM
28, Shivaji Nagar, Udaipur-313001, Rajasthan, India
Email: skvermaster@gmail.com