Creating international and interdisciplinary collaboration for health

AONM Newsletter June 2020

The last three months have been an odyssey through unprecedented territory for all of us. This AONM newsletter begins by covering this new RNA virus, SARS-CoV-2, from a couple of perspectives that may be new and surprising. An article on HHV-6 dives deep into its links with M.E. This 6th herpes virus appears to have a curious protective function, preventing other cells from becoming infected with other viruses, but at huge expense: mitochondrial fragmentation and cellular energy depletion. The final section includes an overview of the COVID-19 webinar series that AONM has been running over the last two months with outstanding international speakers. We also give an outlook of the fascinating AONM webinars to come, as well as upcoming events of affiliated organisations.

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1. Taking a fresh lens to COVID-19

Two pieces of news from the scientific journals have not been covered much, yet potentially shed fresh light on the current global crisis.

i. Why is it particularly affecting those with MetSyn/diabetes?

An article *"Discovered: Metabolic mechanism of cytokine storms"* explains that *"The inflammatory response to influenza infections is also known to drive up glucose metabolism, in part so that immune cells have the necessary energy to mount a strong response, and also because the virus needs the sugar to replicate"* (1)

The hexosamine biosynthesis pathway along which glucose metabolism is specifically ramped up in this

case *"is also required for viral replication, they show"*.

An additional problem is that *"there is considerable evidence indicating that increased activity of the HSP [hexosamine biosynthesis pathway] can cause insulin resistance in cell culture models and in rodents **in vivo**."* If this pathway is a driver of insulin resistance, it will be targeting those with metabolic syndrome and diabetes. Could this be why this new virus is affecting those suffering from MetSyn/diabetes particularly hard?

A co-author of the paper, Shi Liu, says in a press release(2) "*We believe that glucose metabolism contributes to various COVID-19 outcomes since both influenza and COVID-19 can induce a cytokine storm, and since COVID-19 patients with diabetes have shown higher mortality."* The press release (15/4/20) is entitled *"High blood glucose levels may explain why some flu patients experience severe symptoms"* – as clear a pointer as any that a low-carbohydrate diet is very likely to be highly protective against this new virus, and against advancing severity. But is anyone talking about diet at all as a preventative strategy? Not a jot, at least not the mainstream media, politicians or conventional health professionals – despite blanket news coverage of this pandemic as never before in history. Original article available at PubMed(3).

ii. Is it using a bacteria as a Trojan horse?

Another piece of research that has generated huge interest on social media but not been picked up by the mainstream is Sandeep Chakraborty's paper *"The 2019 Wuhan outbreak is caused by the bacteria Prevotella, which is aided by the coronavirus, possibly to adhere to epithelial cells - Prevotella is present in huge amounts in patients from both China and Hong Kong"*(4)

Chakraborty has hypothesised, based on extensive metagenomic studies of patient sequencing data from China, Brazil, Peru and Cambodia, that SARS-CoV-2 (the causative agent of COVID-19) has the ability to enter bacteria, replicate alongside them and thus spread silently. He says the RNA-seq data from Wuhan that he analysed *"has millions of reads of Prevotella proteins, and a few thousands from 2019-nCoV"*, and the patient data he analysed from Hong Kong also showed significant presence of Prevotella.

He explains that *"Prevotella (also Fusobacterium and other bacteria) have .. enzymes, specifically hemolysins which break down red blood cells, and heme-binding proteins which can sequester the heme (which binds iron, which binds oxygen). This leads to the breathlessness observed in almost all COVID 19 patients. And once again, this is not a hypothesis - sequencing data from Covid19 patients show that these proteins are being expressed."*(5)

Linking back to the previous article, it is a fact that *"Prevotella are unusually abundant in diabetic patients"*(6)

Might the action of SARS-CoV-2 as a bacteriophage explain the apparent success of antibiotics in the hydroxychloroquine-azithromycin regime used by the French virologist Dr. Raoult and others? Searching for bacteria that this virus is hijacking as a Trojan horse may well be worthwhile.

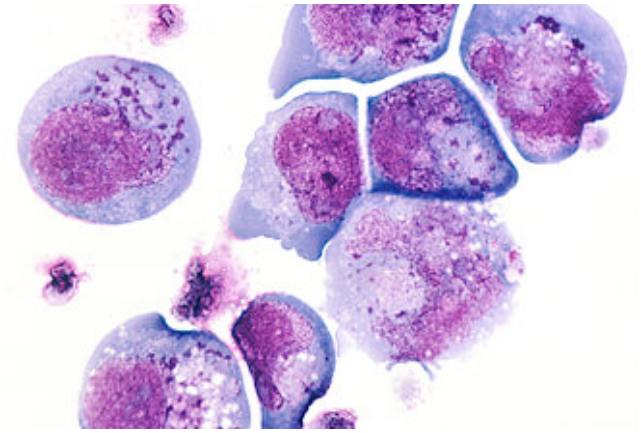
(1) https://www.the-scientist.com/news-opinion/discovered-metabolic-mechanism-of-cytokine-storms--67424
(2) https://www.eurekalert.org/pub_releases/2020-04/aaft-hbg041320.php
(3) https://pubmed.ncbi.nlm.nih.gov/32494619/
(4)https://www.researchgate.net/publication/339008515_The_2019_Wuhan_outbreak_is_caused_by_the_bacteria_Prevotella_which_is_aided_by_the_coronavirus_possibly_to_adhere_to_epithelial_cells_-_Prevotella_is_present_in_huge_amounts_in_patients_from_both_Chin
(5) https://in.dental-tribune.com/news/prevotella-endemic-tb-might-explain-low-covid-19-deaths-in-india-sandeep-chakraborty-interview/
(6) https://www.ncbi.nlm.nih.gov/pmc/articles/PMC2816710/

SARS-CoV-2 tests available from ArminLabs

Arminlabs can now offer SARS-CoV-2 tests – both PCR and antibody tests. The PCR is available both as a nasopharyngyl swab and as a throat lavage solution. The antibody tests are available for IgG and IgA, IgG and IgM, and SARSPLEX incorporates all three tests in one.

The tests are available only through health professionals; for further details on these tests please see the webinars by Dr. Armin Schwarzbach and Dr. Leona Gilbert at https://aonm.org/webinars/, and/or contact the AONM helpline on 03331 210 305.

2. HHV-6 – Targeting our cells' energy reserves, the mitochondria



https://en.wikipedia.org/wiki/Human_herpesvirus_6

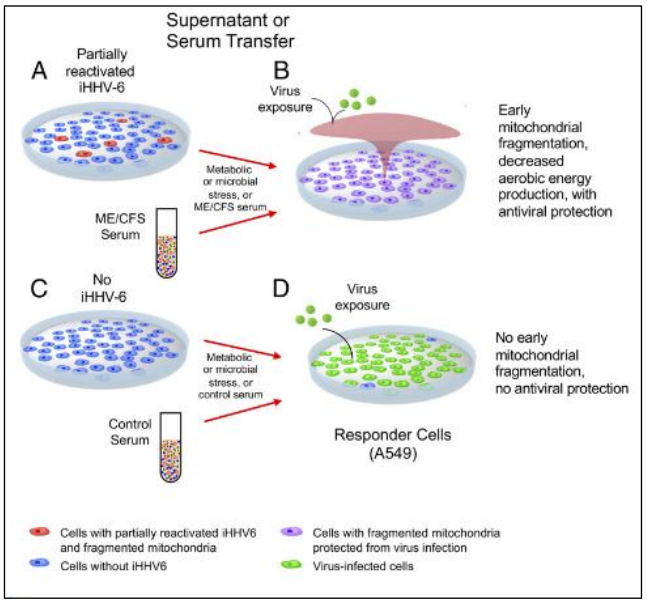
A recent study by Dr. Robert Naviaux et al reveals that "*HHV-6 reactivation in ME patients activates a multisystem, proinflammatory, cell danger response [CDR] that protects against certain RNA and DNA virus infections but comes at the cost of mitochondrial fragmentation and severely compromised energy metabolism.*"(1) Dr. Naviaux has been spearheading research into the CDR phenomenon since 2014 when he first elaborated it in a seminal article in *Mitochondrion*, *"Metabolic features of the cell danger response."* (For further information on the CDR, see this link https://www.ihcan-mag.com/imag/aonm.pdf).

While the sentries of our cells, mitochondria, are attempting to protect us by morphing from power-house to battleship mode, the collateral damage in terms of energy loss (and much more) may be huge. Bhupesh Prusty had already noted in 2018 that the production of HHV-6's very small non-coding RNAs (sncRNA) generate a signal in the cells they have infected and cause the mitochondria to fragment.(2) *"It was as if the virus was putting the cells in stasis"*.(3)

It appeared that this happened in the earliest stages of reactivation, even before the virus had begun replicating. The authors found reduced levels of ATP (adenosine triphosate, the energy currency of our cells), and increased mitochondrial fragmentation. In a press release, Naviaux explained: *"Our work also helps us understand the long-known, but poorly understood link of ME/CFS to past infections with Human Herpes Virus-6 (HHV-6) or HHV-7."*(4)

The link between the herpes virus HHV-6 and ME was first made in a 1992 paper by a team of 17 researchers who had studied the Lake Tahoe ME/CFS outbreak, including Drs. Paul Cheney and Dan Peterson, who first discovered the illness in Incline Village in 1984 where 160 of the residents came down with similar symptoms. The paper focused on three abnormalities found in the patients:
1) high CD4/CD8 T-cell ratios,
2) MRI scans showing "punctate, subcortical areas of high signal intensity consistent with edema or demyelination," ("unidentified bright objects"), and
3) active replication of HHV-6. (5)

The findings were – despite the very high-calibre team of authors – swept under the carpet by the CDC. Details of this scandal can be found in Hillary Johnson's chronicle "Osler's Web".(6)



https://www.immunohorizons.org/content/immunohorizon/4/4/201.full.pdf

Dr. Dan Peterson continued to suspect HHV-6 involvement in ME, and encouraged establishment of the HHV-6 Foundation in 2004, which co-sponsored the new Naviaux/Prusty study.

In 2013 Dr. Michael VanElzakker suggested a low-grade viral infection of the sensory ganglia, particularly focusing on the vagus nerve and HHV-6 (7), though he believes that any infectious agent with an affinity for nerve tissues can infect the vagus nerve – EBV, VZV, enteroviruses, and even Borrelia.

The Vagus Nerve Infection Hypothesis (VNIH) is finding *"Virchow-Robin perivascular spaces"* in brainstem MRIs – viz the *"unidentified bright objects"* from the Lake Tahoe MRIs in the 1980s – likely to be characteristic of glymphatic dysfunction and perivascular pathology. The VNIH proposes that neurotropic viruses are able to trigger the symptoms characteristic of ME. *"The vagus nerve*

appears, in fact, to be ripe for infection in ME/CFS. As it 'wanders' through the body it comes into contact with virus havens such as the esophagus, stomach, lungs and spleen, all of which have likely at one time or another harbored the herpesviruses (HHV6, HHV-5 [cytomegalovirus], HHV-4 [Epstein-Barr virus]) that have been thought to be associated with ME/CFS for decades."(8)

Interestingly, it is suspected that HHV-6 enters the brain through the olfactory nerve (9) – the same portal of entry as streptococcal antibodies that can eventually cause PANDAS.(10) Active HHV-6 infections have been definitively associated with a huge range of disorders, including encephalitis, epilepsy, seizures, autoimmune disease, MS and Alzheimer's.(11) HHV-6 has also been identified as a critical factor in 'awakening' endogenous retroviruses.(12)

For further information on HHV-6, please see the book "The Virus Within: The Coming Epidemic" by Nicholas Regush.

1. Human Herpesvirus-6 Reactivation, Mitochondrial Fragmentation, and the Coordination of Antiviral and Metabolic Phenotypes in Myalgic Encephalomyelitis/Chronic Fatigue Syndrome, https://www.immunohorizons.org/content/4/4/201
2. HHV-6 Mediated Mitochondrial Modulation and Its Association to ME/CFS https://solvecfs.org/hhv-6-mediated-mitochondrial-modulation-and-its-possible-association-to-mecfs/
3. "Explaining ME/CFS? Prusty / Naviaux Study Ties Infections to Energy Breakdowns", https://www.healthrising.org/blog/2020/04/26/explaining-chronic-fatigue-syndrome-naviaux-prusty/
4. https://health.ucsd.edu/news/releases/Pages/2020-04-27-for-me-cfs-patients-viral-immunities-come-at-lifelong-cost.aspx
5. A Chronic Illness Characterized by Fatigue, Neurologic and Immunologic Disorders, and Active Human Herpesvirus Type 6 Infection (https://www.acpjournals.org/doi/10.7326/0003-4819-116-2-103)
6. Osler's Web. Inside the labyrinth of the chronic fatigue syndrome epidemic. iUniverse.inc, 1996, 2006
7. Chronic Fatigue Syndrome From Vagus Nerve Infection: A Psychoneuroimmunological Hypothesis, https://pubmed.ncbi.nlm.nih.gov/23790471/
8. http://simmaronresearch.com/2013/12/one-theory-explain-vagus-nerve-infection-chronic-fatigue-syndrome/
9. https://hhv-6foundation.org/associated-conditions/hhv-6-and-chronic-fatigue-syndrome
10. Cleary P et al, Group A Streptococcus Intranasal Infection Promotes CNS Infiltration by Streptococcal-Specific Th17 Cells, https://pubmed.ncbi.nlm.nih.gov/26657857/
11. https://hhv-6foundation.org/conditions-associated-with-hhv-6
12. Induction of Proinflammatory Multiple Sclerosis-Associated Retrovirus Envelope Protein by Human Herpesvirus-6A and CD46 Receptor Engagement, https://pubmed.ncbi.nlm.nih.gov/30574140/

3. COVID-19 webinar series

AONM's Covid-19 webinar series has been extraordinarily enlightening and very well received. Dr. Judy Mikovits discussed her perspectives on the etiology of the virus, the biochemical pathways by which it acts, and possible remedies.

Dr. Sarah Myhill focused particularly on interconnections with M.E. and fibromyalgia on International Awareness Day for Chronic Immunological and Neurological Diseases.

Dr. Robert Bransfield talked about a "Tale of Two Pandemics", covering Lyme Disease and Covid-19, while

Dr. Joseph Jemsek wove in his experience of a third pandemic he has been centrally involved in, HIV/AIDS.

Dr. Armin Schwarzbach discussed the highly specific SARS-CoV-2 tests now offered by ArminLabs, together with Professor Leona Gilbert on SARSPLEX, the only test worldwide to cover all three antibodies (IgG, IgA and IgM) in one.

Jenna Luché-Thayer covered some of the human rights issues raised by this worldwide pandemic, while

Dr. Jodie Dashore elaborated on possible commonalities between biotoxin illness and COVID-19, as well as PANS/PANDAS and the new virus.

HHV-6/HHV-7 Elispots now available from ArminLabs – a world first

Arminlabs is now offering the HHV-6 and HHV-7 Elispot. First isolated in 1986, it had previously only been possible to detect these herpes viruses via either PCR (polymerase chain reaction) or antibody tests (IgG and IgM). IgG is taken to indicate past infection (though if high there are arguments for viewing it as a reactivation), and IgM is seen in recent infection. Chronic, ongoing infection has up to now been hard to detect. An Elispot (enzyme-linked immunosorbent spot) uses T-cells to show a cellular response against HHV-6/-7 antigens, indicating active infection. It is highly sensitive, and can detect a single T-cell reacting to HHV-6/-7, with detection limits of up to one cell in 100,000. Elispots are useful for monitoring purposes as they should be negative 4-8 weeks after the end of an effective therapy. Please see our website www.aonm.org and go to the following links for further information on HHV-6 and HHV-7 .

Dr. Richard Horowitz, who will be a very familiar name due to his deep involvement with Lyme Disease and coinfections for many decades (author of "Why can't I get better?" and "How can I get better?" (http://www.cangetbetter.com/), gave a superb presentation on "COVID-19: Prevention, Diagnosis and Treatment Options" at last week's AONM COVID-19 webinar. He covered natural methods for dampening the inflammatory NFkB response as well as for stimulating the Nrf2 response that overcomes inflammation. So these were fascinating and actionable approaches for all of us, both to prevent infection and help support those who appear to have succumbed to the virus. The full recording, including 150 slides in PDF format, are available here: https://aonm.org/view-past-webinars/

Upcoming events

AONM COVID-19 Webinar Series

Dr. Armin Schwarzbach
Wednesday June 17th at 7pm
SARS-CoV-2: Testing status quo so far, and how Lyme patients seem to be affected

Dr. Sarah Myhill
Thursday June 25th at 5pm
Dr. Myhill will continue answering questions live on the interconnections between M.E. and COVID, and effective therapies.

Dr. Robert Bransfield
Thursday July 9th at 5pm
Answering questions live on the twin pandemics, COVID-19 and Lyme Disease

Mitochondrial Conference
Oct. 3rd 2020
Gilian Crowther: Mitochondria – the Orchestrators of Cellular Health
Dr. Sarah Myhill
Ray Griffiths
Webinar - details to be announced
bant.org.uk/

Association of Naturopathic Practitioners
July 14th 6.30 pm, Webinar:
Lyme Disease: Prevalence, symptoms and testing
Dr. Armin Schwarzbach MD PhD
and Gilian Crowther
theanp.co.uk/

BSEM Workshop - SAVE THE DATE
Friday, 25th September 2020
Hallam Conference Centre, 44 Hallam Street, London W1W 6JJ
Details to follow
bsem.org.uk/

BSEM Training Day 7 - Immunology
Friday, 6th November 2020
Hallam Conference Centre, 44 Hallam Street, London W1W 6JJ
Details to follow
bsem.org.uk/