COVID-19 Update, June 20, 2020

Dietrich Klinghardt MD, PhD

Coronavirus (COVID-19) deaths worldwide per one million population as of July 1, 2020, by country

Germany: today just over 9000 deaths in Germany of 90 million (=100/million)

	Confirmed deaths (absolute)	Population (in millions)	Deaths per million
Belgium	9,747	11.42	853.35
United Kingdom	43,730	66.49	657.7
Spain	28,355	46.72	606.86
Italy	34,767	60.43	575.31
Sweden	5,333	10.18	523.71
France	29,777	66.99	444.52
USA	127,244	327.17	388.93
Ireland	1,736	4.85	357.68
Netherlands	6,113	17.23	354.77
Chile	5,688	18.73	303.7
Peru	9,677	31.99	302.51
Brazil	59,594	209.47	284.5
Ecuador	4,527	17.08	264.98


DISEASE DEATHS PER DAY WORLDWIDE
Tuberculosis 3,014
Hepatitis B 2,430
Pneumonia 2,216
HIV / AIDS 2,110
Malaria 2,002
Shigellosis 1,644
Rotavirus 1,233
Seasonal Flu 1,027
Norovirus 548
Whooping Cough 440
Typhoid 396
Cholera 392
Meningitis 329
Measles 247
Rabies 162
Yellow Fever 82
COVID-19 Coronavirus 56
Leishmaniasis 55
Echinococcosis 53
Dengue Fever 50
Hepatitis A 20
Chicken Pox 12
Sleeping Sickness 10
Ebola 5.3
SARS 3.2
MERS 2.3
THIS is what collapsed the world economy
SOURCES: CDC, WHO, THE LANCET - CORRECT AS OF MARCH 9, 2020

How are the numbers of covid-19 victims - or dead people - calculated?

July 2, 2020

Did you know that there is a special algorithm on “Google search” that creates "news" about the Coronavirus and infected or dead people in the world? Type any three-digit number and "new cases" and Google has an answer!

I tried first with the same digits (111, 222...999) and then some other combinations until I had enough, and every time there were so many infected or dead people somewhere!

This is a strange way to find out the truth about Covid. Try it! Or should I try a real pendulum to find out the truth?

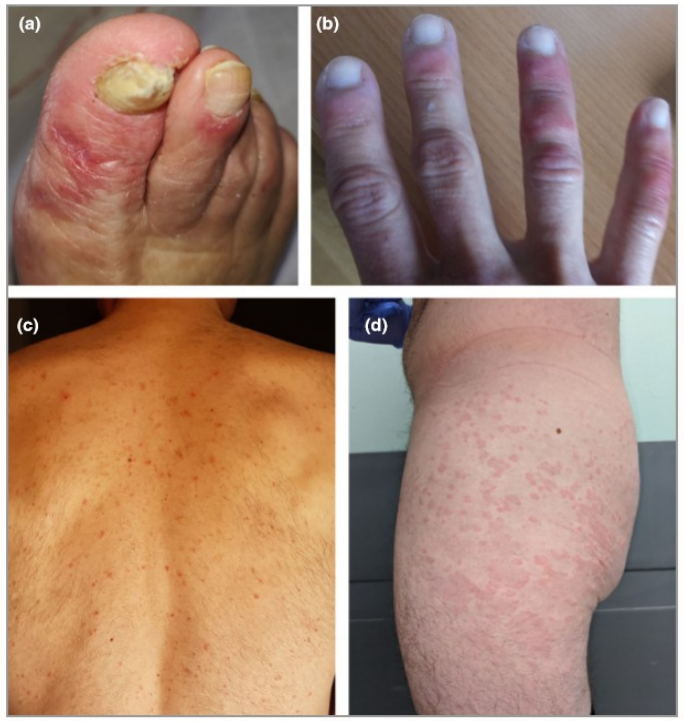
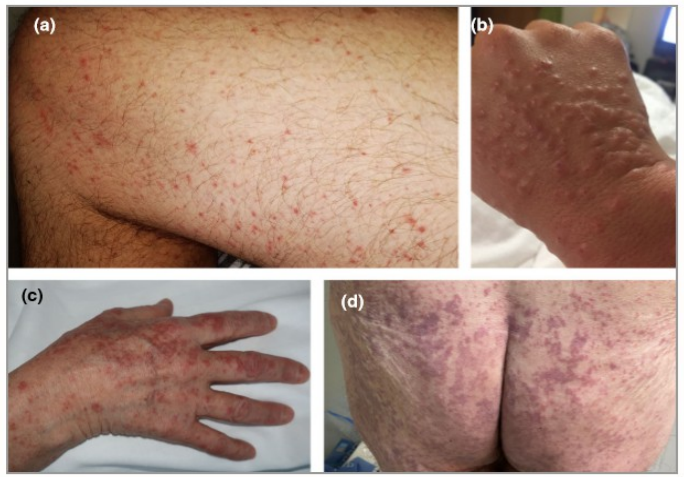


Figure 1 All of the patients shown had confirmed COVID-19. (a, b) Acral areas of erythema–oedema with vesicles or pustules (pseudo-chilblain). (c) Monomorphic (i.e. at same stages) disseminated vesicles. (d) Urticarial lesions.



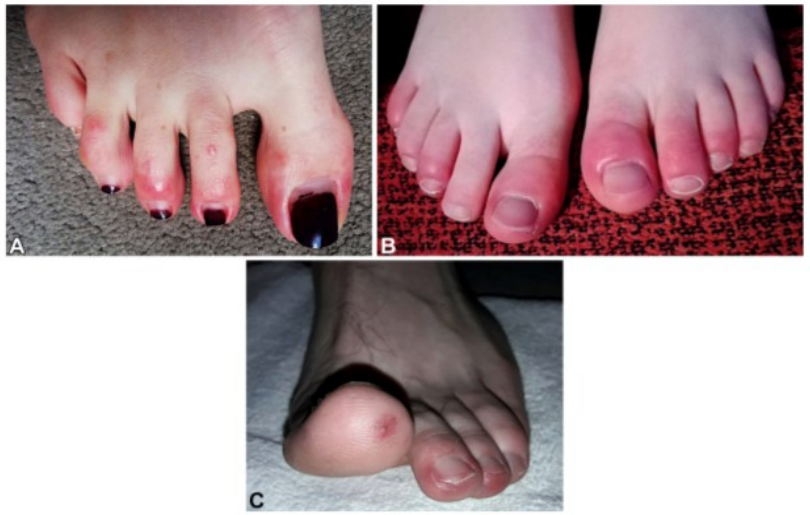


Fig 1. Chilblain-like acral lesions. **A**, Ecchymotic plaques and nodules with a bruising appearance over the distal aspects of toes. **B**, Confluent erythematous-violaceous diffuse plaques sparing some toes and the dorsal feet. **C**, Close-up view of the lateral and plantar aspects of toes.

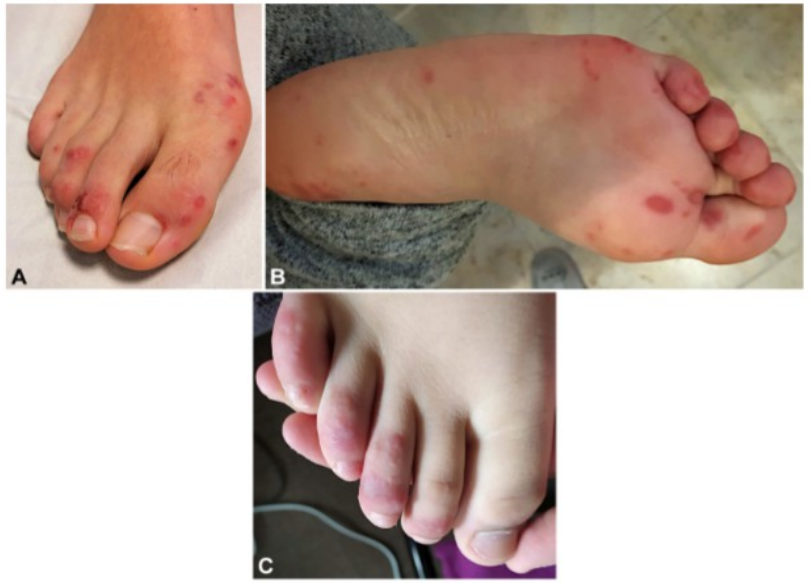


Fig 2. Erythema multiforme-like acral lesions. **A**, Erosion and crust formation over dusky plaques in the dorsal aspects of digits. A Koebner phenomenon is present over the hallux valgus. **B**, Circular lesions, some of them with a targetoid appearance, over the plantar surface. **C**, Confluent vesicles over a dusky area.

Covid and the Brain

- *Editor's note: Find the latest COVID-19 news and guidance in Medscape's Coronavirus Resource Center.*
- A new review outlines a three-stage classification of the impact of COVID-19 on the central nervous system and recommends hospitalized patients with the virus all undergo MRI to flag potential neurologic damage and inform postdischarge monitoring.
- Stage 1: viral damage is limited to epithelial cells of the nose and mouth
- Stage 2: blood clots that form in the lungs may travel to the brain, leading to stroke.
- Stage 3: the virus crosses the blood–brain barrier and invades the brain.
- "Our major take-home points are that patients with COVID-19 symptoms, such as shortness of breath, headache, or dizziness, may have neurological symptoms that, at the time of hospitalization, might not be noticed or prioritized, or whose neurological symptoms may become apparent only after they leave the hospital," lead author Majid Fotuhi, MD, PhD, medical director of NeuroGrow Brain Fitness Center, McLean, Virginia, told *Medscape Medical News*.

The review was published online June 8 in the *Journal of Alzheimer's Disease*.

- Wreaks CNS Havoc
- It has become "increasingly evident" that SARS-CoV-2 can cause neurologic manifestations, including anosmia, seizures, stroke, confusion, encephalopathy, and total paralysis, the authors write.
- The authors note that SARS-CoV-2 binds to angiotensin-converting enzyme 2 (ACE2) that facilitates the conversion of angiotensin II to angiotensin. After ACE2 has bound to respiratory epithelial cells, and then to epithelial cells in blood vessels, SARS-CoV-2 triggers the formation of a "cytokine storm."
- These cytokines, in turn, increase vascular permeability, edema, and widespread inflammation, as well as triggering "hypercoagulation cascades," which cause small and large blood clots that affect multiple organs.
- If SARS-CoV-2 crosses the blood–brain barrier, directly entering the brain, it can contribute to demyelination or neurodegeneration.
- "We very thoroughly reviewed the literature published between January 1 and May 1, 2020 about neurological issues [in COVID-19] and what I found interesting is that so many neurological things can happen due to a virus which is so small," said Fotuhi.

During the exponential phase of the pandemic, Benedict Michael, PhD, from the University of Liverpool, and colleagues set up an online case reporting platform called CoroNerve to investigate the range of COVID-19 complications that affect the brain.

- Among the 125 patients (82%) with full clinical details, 114 (91%) had confirmed SARS-CoV-2 infection, 6 (5%) had probable infection and 4 (9%) had possible infection.
- The most common presenting complication was a cerebrovascular event, reported in 77 (62%) patients, of whom 57 (74%) had ischemic stroke, 9 (12%) intracerebral hemorrhage, and 1 (1%) CNS vasculitis. Cerebrovascular events were more common among patients older than 60 years.
- Altered mental status (defined as an acute alteration in personality, behavior, cognition, or consciousness) was the second most common complication, affecting 39 (31%) patients. Of these, 9 (23%) had unspecified encephalopathy and 7 (18%) had encephalitis.
- The remaining 23 (59%) patients with altered mental status fulfilled the clinical case definitions for psychiatric diagnoses and 21 (92%) of these were new diagnoses.
- Ten (43%) of 23 patients with neuropsychiatric disorders had new-onset psychosis, 6 (26%) had a neurocognitive (dementia-like) syndrome, and 4 (17%) had an affective disorder. Seven (30%) patients had another psychiatric disorder, including 1 case of catatonia and 1 case of mania.
- About half of the patients who experienced altered mental status were younger than 60 years.
- Although most psychiatric diagnoses were determined as new by the notifying clinician, the possibility that they were present but undiagnosed before the patient developed COVID-19 can't be excluded, the authors note.

Wang, T., Du, Z., Zhu, F., Cao, Z., An, Y., Gao, Y., & Jiang, B. (2020). Comorbidities and multi-organ injuries in the treatment of COVID-19. *The Lancet*, *395*(10228), e52.

“These patients often die of their original comorbidities; we therefore need to accurately evaluate all original comorbidities of individuals with COVID-19. In addition to the risk of group transmission of an infectious disease, we should pay full attention to the treatment of the original comorbidities of the individual while treating pneumonia, especially in older patients with serious comorbid conditions. Not only capable of causing pneumonia, COVID-19 may also cause damage to other organs such as the heart, the liver, and the kidneys, as well as to organ systems such as the blood and the immune system. Patients eventually die of multiple organ failure, shock, acute respiratory distress syndrome, heart failure, arrhythmias, and renal failure.We should therefore pay attention to potential multi-organ injuries and the protection and prevention thereof in the treatment of COVID-19”

Dysautonomia: the Covid damage to the autonomic nervous system

https://www.wsj.com/articles/three-months-in-these-patients-are-still-ravaged-by-covids-fallout-11593612004?mod=itp_wsj&ru=yahoo

Dysautonomia is an umbrella term for medical conditions that result from a malfunctioning autonomic nervous system.

It's more common in women, says Amy Kontorovich, assistant professor of medicine and cardiology at Mount Sinai Health System. While complications aren't life-threatening, symptoms can be debilitating and even cause people to stop working, while others recover spontaneously or with treatment. An estimated 1% of the U.S. population is affected by dysautonomia but experts believe it is underdiagnosed.

"This is a common condition that is rarely diagnosed because it mimics a lot of other things," says Dr. Kontorovich.

Dysautonomia can be triggered by viruses as well as other medical events, such as strokes and heart attacks, and emotional traumas. Dr. Kontorovich says life events that cause a change in activity level may be a trigger.

The small nerve fibers that carry information to the organs become damaged. Because of the damage, an organ may sense a change in position that didn't occur, and mistakenly tell the heart to speed up, says Serena S. Spudich, chief of neuroinfectious diseases and global neurology at Yale University School of Medicine. "They're not getting the right information," says Dr. Spudich.

Other symptoms can include hot flashes, numbness and tingling in extremities, extreme fatigue, general achiness, brain fog, dizziness, shortness of breath and gastrointestinal symptoms. Symptoms are generally worse when it's hot and humid.

The main existing treatment is a guided exercise program that can help retrain the autonomic nervous system. Other treatments include identifying and avoiding triggers—which can be high temperature, loud noises, certain types of food—alongside dietary changes to improve circulation and blood volume. Patients can also improve blood circulation by wearing compression stockings or socks. Medications are sometimes used but are usually not very effective, says Dr. Kontorovich.

How infectious is Covid-19?

Gao, M., Yang, L., Chen, X., Deng, Y., Yang, S., Xu, H., ... & Gao, X. (2020). **A study on infectivity of asymptomatic SARS-CoV-2 carriers**. *Respiratory Medicine*, 106026.

Abstract/ Background: An ongoing outbreak of coronavirus disease 2019 (COVID-19) has spread around the world. It is debatable whether asymptomatic COVID-19 virus carriers are contagious. We report here a case of the asymptomatic patient and present clinical characteristics of 455 contacts, which aims to study the infectivity of asymptomatic carriers.

Material and methods: 455 contacts who were exposed to the asymptomatic COVID-19 virus carrier became the subjects of our research. They were divided into three groups: 35 patients, 196 family members and 224 hospital staffs. We extracted their epidemiological information, clinical records, auxiliary examination results and therapeutic schedules.

Results: The median contact time for patients was four days and that for family members was five days. Cardiovascular disease accounted for 25% among original diseases of patients. Apart from hospital staffs, both patients and family members were isolated medically. During the quarantine, seven patients plus one family member appeared new respiratory symptoms, where fever was the most common one. The blood counts in most contacts were within a normal range. All CT images showed no sign of COVID-19 infection. No severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) infections was detected in 455 contacts by nucleic acid test.

Conclusion: **In summary, all the 455 contacts were excluded from SARS-CoV-2 infection and we conclude that the infectivity of some asymptomatic SARS-CoV-2 carriers might be weak.**

This paper shows that Cistus tea prevents the attachment of the SARS virus!!!!!

Ludwig, S., et al. "Antiadhäsive Eigenschaften der Pflanzenextrakte **Cistus** und Ladania als breit wirksames antivirales Prinzip gegen respiratorische Viren." *Zeitschrift für Phytotherapie* 34.S 01 (2013): P19.

Schwere und akute Infektionen des Respirationstrakts gehören mit weltweit jährlich 3,9 Mio. fataler Fälle zu den häufigsten Todesursachen durch Infektionserreger. Insbesondere bei Kindern unter 5 Jahren kommt es jährlich zu 120 Mio. Fällen von Pneumonien mit zumeist viraler Ätiologie mit bis zu 1,4 Mio. Todesfällen. Darüber hinaus beobachtet man immer wieder das Auftreten neuer und hochgefährlicher respiratorischer Erreger, wie z.B. dem **SARS-Coronavirus oder den hochpathogenen Influenza-Viren.** Die Weltgesundheitsorganisation (WHO) hat aufgrund dieser Bedrohung in einer Initiative „Battle against Respiratory Viruses (BRaVe)“ ein „Call to Action“-Papier verfasst, das den dringenden Bedarf an sicheren und effektiven Therapeutika mit möglichst breitem antiviralen Spektrum hervorhebt.

Hier rücken auch Pflanzenprodukte aus der traditionellen Medizin zur Abwehr von respiratorischen Viren mehr und mehr in den Fokus wissenschaftlicher Untersuchungen.

This paper gives you that liquorice is a real big deal!!

Cinatl, J., Morgenstern, B., Bauer, G., Chandra, P., Rabenau, H., & Doerr, H. W. (2003). Glycyrrhizin, an active component of **liquorice roots**, and replication of SARS-associated coronavirus. *The Lancet*, *361*(9374), 2045-2046.

Abstract:

The outbreak of SARS warrants the search for antiviral compounds to treat the disease. At present, no specific treatment has been identified for SARS-associated coronavirus infection. We assessed the antiviral potential of ribavirin, 6-azauridine, pyrazofurin, mycophenolic acid, and glycyrrhizin against two clinical isolates of coronavirus (FFM-1 and FFM-2) from patients with SARS admitted to the clinical centre of Frankfurt University, Germany. **Of all the compounds, glycyrrhizin was the most active in inhibiting replication of the SARS-associated virus**. Our findings suggest that glycyrrhizin should be assessed for treatment of SARS.

Treatment with Hydroxychloroquine, Azithromycin, and Combination in Patients Hospitalized with COVID-19

International Journal of Infectious Diseases; July1, 2020

Arshad,S., Henry Ford Covid-19 Task Force, et al

Results

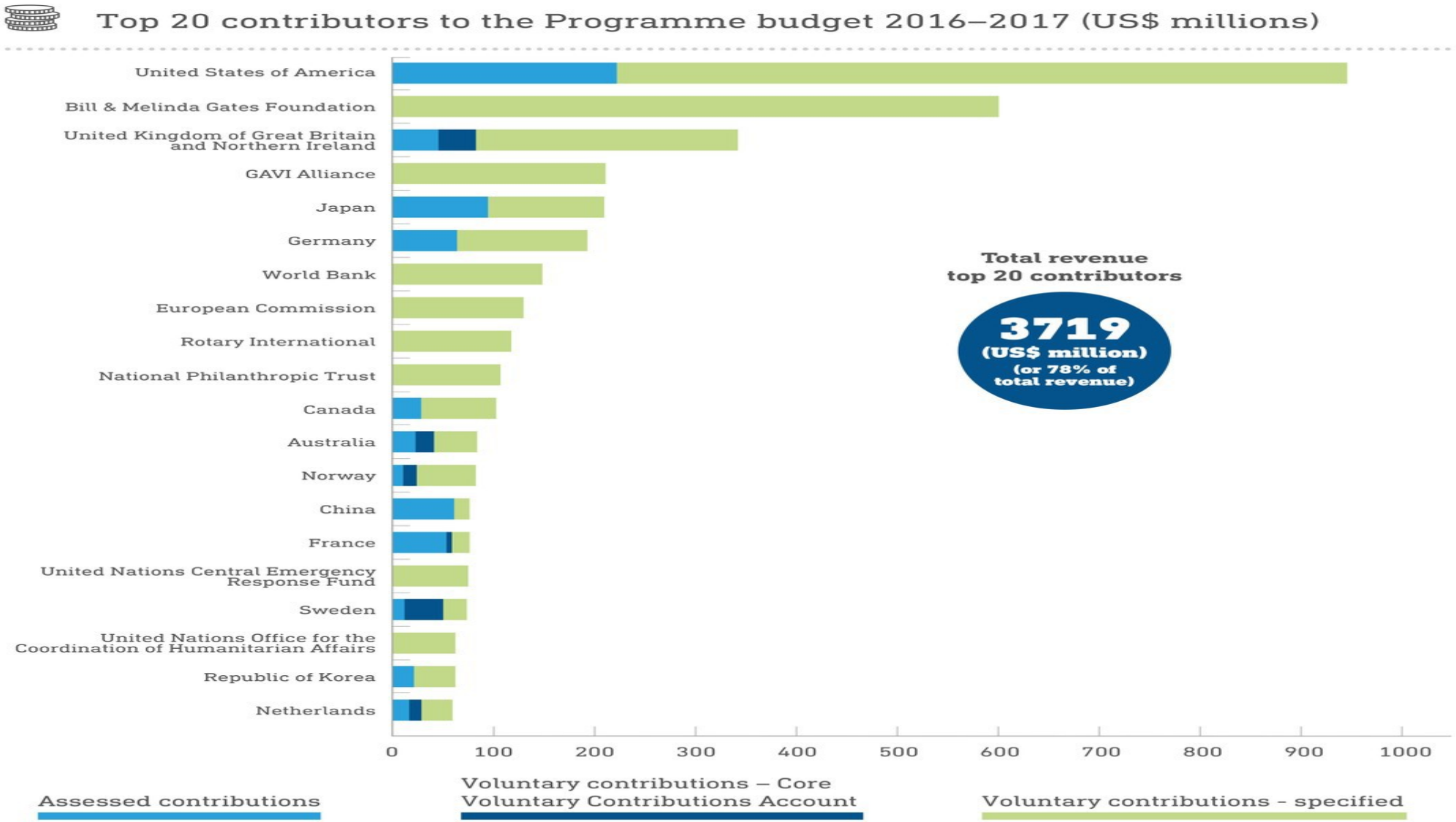
Of 2,541 patients, with a median total hospitalization time of 6 days (IQR: 4-10 days), median age was 64 years (IQR:53-76 years), 51% male, 56% African American, with median time to follow-up of 28.5 days (IQR:3-53). Overall in-hospital mortality was 18.1% (95% CI:16.6%-19.7%); by treatment: hydroxychloroquine + azithromycin, 157/783 (20.1% [95% CI: 17.3%-23.0%]), hydroxychloroquine alone, 162/1202 (13.5% [95% CI: 11.6%-15.5%]), azithromycin alone, 33/147 (22.4% [95% CI: 16.0%-30.1%]), and neither drug, 108/409 (26.4% [95% CI: 22.2%-31.0%]). Primary cause of mortality was respiratory failure (88%); no patient had documented torsades de pointes. From Cox regression modeling, predictors of mortality were age≥65 years (HR:2.6 [95% CI:1.9-3.3]), white race (HR:1.7 [95% CI:1.4-2.1]), CKD (HR:1.7 [95%CI:1.4-2.1]), reduced O2 saturation level on admission (HR:1.5 [95%CI:1.1-2.1]), and ventilator use during admission (HR: 2.2 [95%CI:1.4-3.3]). Hydroxychloroquine provided a 66% hazard ratio reduction, and hydroxychloroquine + azithromycin 71% compared to neither treatment ($p < 0.001$).

Conclusions and Relevance: In this multi-hospital assessment, when controlling for COVID-19 risk factors, treatment with hydroxychloroquine alone and in combination with azithromycin was associated with reduction in COVID-19 associated mortality. Prospective trials are needed to examine this impact.

Was sind Viren?

- Viren sind im Gegensatz zu Bakterien keine Lebewesen, da sie keinen eigenen Stoffwechsel besitzen und sich ohne einen Wirtsorganismus nicht fortpflanzen können. Viren haben kein Zellplasma, in welchem die Stoffwechselvorgänge ablaufen, die zur Vermehrung nötig sind. Viren haben auch keine Zellmembran, die als Eingangs- und Ausgangstür für lebensnotwendige Stoffe dient. Und Viren fehlen wichtige Werkzeuge wie Ribosomen, die zur Herstellung von Proteinen benötigt werden, sowie Mitochondrien, die Zellen zur Energiegewinnung benötigen.
- Deshalb müssen Viren, um sich zu vermehren, die Zellen anderer Lebewesen infizieren. Diese Infektion erfolgt meist über ganz bestimmte Eiweiße, sogenannte Rezeptoren, die sich in der Zellmembran der Wirtszelle befinden. Um nun in die Zelle des Wirts zu gelangen, binden bestimmte Proteine auf der Oberfläche des Virus an diese speziellen Rezeptoren und schließen die Zelle wie mit einem Schlüssel auf.
- Im Falle von SARS-CoV-2 bindet das Virus an den Rezeptor ACE-2 (Angiotensin-Converting-Enzyme 2) und gelangt so in unsere Zellen, die ACE-2 auf ihrer Oberfläche tragen.
- In der Zelle angelangt, programmiert das Virus diese zur Virusfabrik um.
- Die Zelle stellt dann, ohne es zu merken, neue Viruspartikel her. Anschließend werden die neuen Viren ins Blut entlassen, wo sie weitere Zellen infizieren können. Bei der Freisetzung der Viren werden die infizierten Zellen des Wirts zerstört, was sich in Krankheitssymptomen äußert, wenn viele Zellen von einer Infektion betroffen sind.

Wer investiert in Impfstoffe?



[2] Full lists for 2016 and 2017 of all voluntary contributions, by fund and by contributor are provided in separate reports. Documents A70/INF./4 and A71/INF./2, respectively.

The vaccine plot thickens: Fauci, Gates and the elite

robertfkennedyjr

New documents obtained by Axios and Public Citizen suggest that NIH owns half the key patent for Moderna's controversial Covid Vaccine & could collect half the royalties.In addition 4 NIH scientists have filed their own provisional patent application as co inventors Little known NIH regulations let agency scientists collect up to $150,000.00 annually in royalties from vaccines upon which they worked. These rules are recipes for regulatory corruption. NIH's stake in the jab may explain why Anthony Fauci moved Moderna's vax to the front of the line and his to let Moderna skip animal trials despite the experimental technology and the inherent dangers of Coronavirus vaccines. Every prior coronavirus vax has proven lethal to humans and animals due to the COVID's unique penchant for "pathogenic priming." The deaths occur only after a vaccinated individual encounters the wild virus. Public health advocates and scientists criticized Fauci's decision to skip animal trials as reckless. It may also explain why Anthony Fauci arranged $483 million grant to Moderna from a sister NIH agency , BARDA,despite the fact that Moderna has never brought a product to market or approval. Fauci's infusion made, Moderna CEO Steve Bancel a billionaire and further enriched Fauci's mentor & co investor Bill Gates. It may also explain why Fauci publicly announced he was "encouraged " by Moderna's catastrophic Phase 1 clinical trials despite the fact that 20% of the high dose & 6% of the low dose groups of super healthy volunteers needed to be hospitalized following vaccination. Those results would have spelled DOA for any other medical product. After getting the abysmal news Bancel immediately dumped $30 million in stock & Fauci was forced to make his optimistic public assessment to save Moderna's plummeting shares from death spiral.

Fauci painted lipstick on that lame donkey and now he's trying to convince everyone it's a thoroughbred. Moderna and NIH began manufacturing the first of 1 billion doses of the deadly vaccine this month. Fauci knows from experience that no matter how dangerous a vaccine,the easy part is convincing people to take it. Pharma,after all controls the media.

View all 913 comments

Die RNA-Impfung enthält im Gegensatz zur konventionellen Impfung nicht das Antigen, also das virale Oberflächenprotein selbst, sondern lediglich die genetische Bauanleitung für dieses Protein. Hat es die mRNA mit Hilfe der Lipid-Nanopartikel in die Wirtszelle geschafft, soll sie an den Ribosomen, also den Proteinfabriken der Zelle, in das virale Protein übersetzt werden. Anschließend soll das Protein aus der Zelle in die Blutbahn freigesetzt werden, wo es vom Immunsystem als fremd erkannt wird, so dass letzteres spezifische Antikörper dagegen bildet — soweit die Theorie.

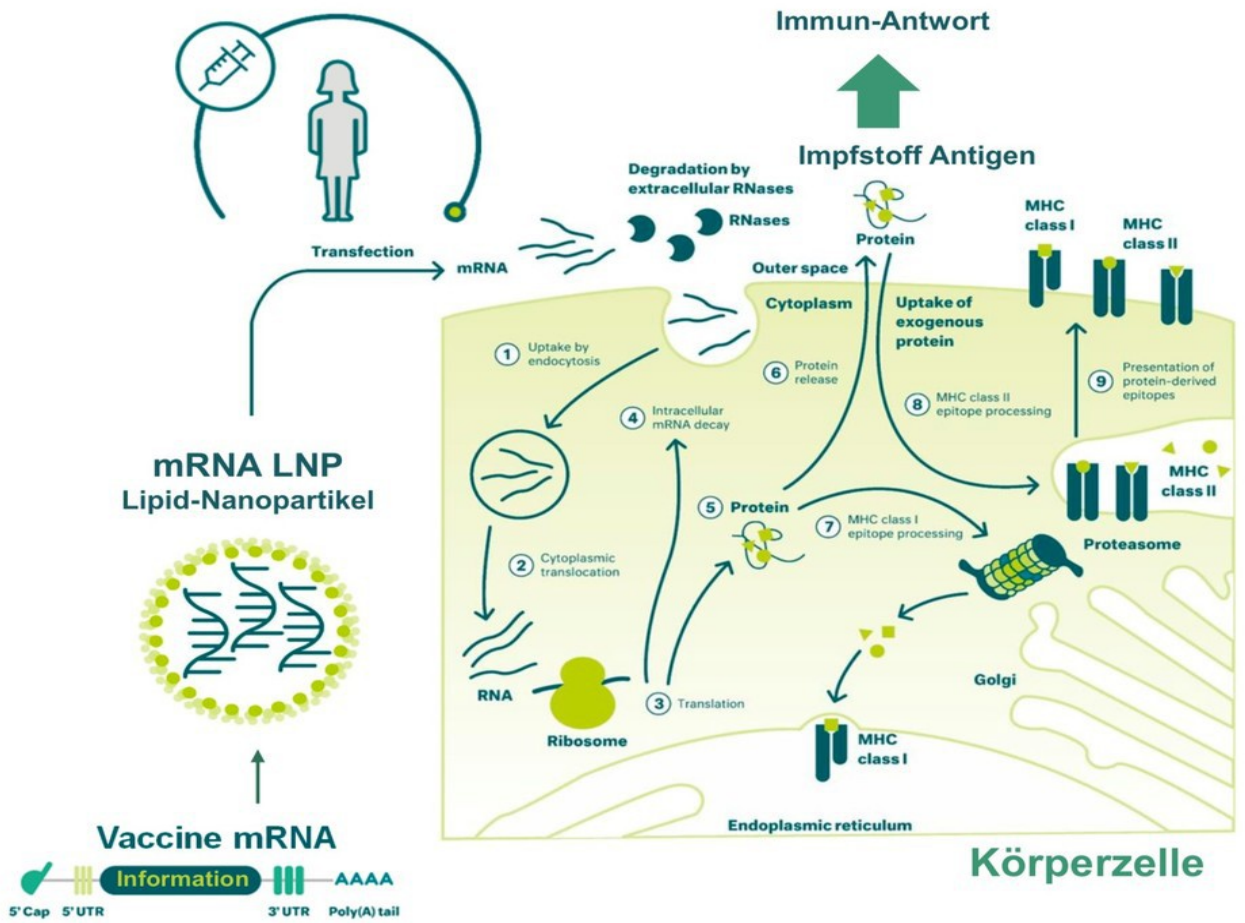
Doch was in der Theorie logisch und konsistent klingt, muss in der biologischen Praxis nicht notwendigerweise so funktionieren. In der Forschung hat uns das komplexe System Körper schon häufig einen Strich durch die Rechnung gemacht. So funktionieren beispielsweise viele Dinge im Tiermodell, während sie im Menschen dann kläglich versagen.

RNA-Impfstoffe greifen im Gegensatz zu Antigen-basierten Impfstoffen tiefgreifend in den Zellstoffwechsel ein. Ob sich daraus Langzeitschäden ergeben, ist unklar (Quelle: PP-Präsentation BioNTech)

BNT162 COVID-19 mRNA Impstoffe

mRNA Impfstoffe

- Die Wirkungsweise von mRNA-Impfstoffen ist das Einbringen von RNA-kodierter genetischer Information als Blaupause für den Impfstoff in die Körperzellen des Geimpften.
- Die Körperzellen nehmen die mRNA auf und bilden das Impfstoffantigen
- Gleichzeitig stimuliert die mRNA das Immunsystem des Geimpften, welches eine Immunantwort gegen das Impfantigen aufbaut.

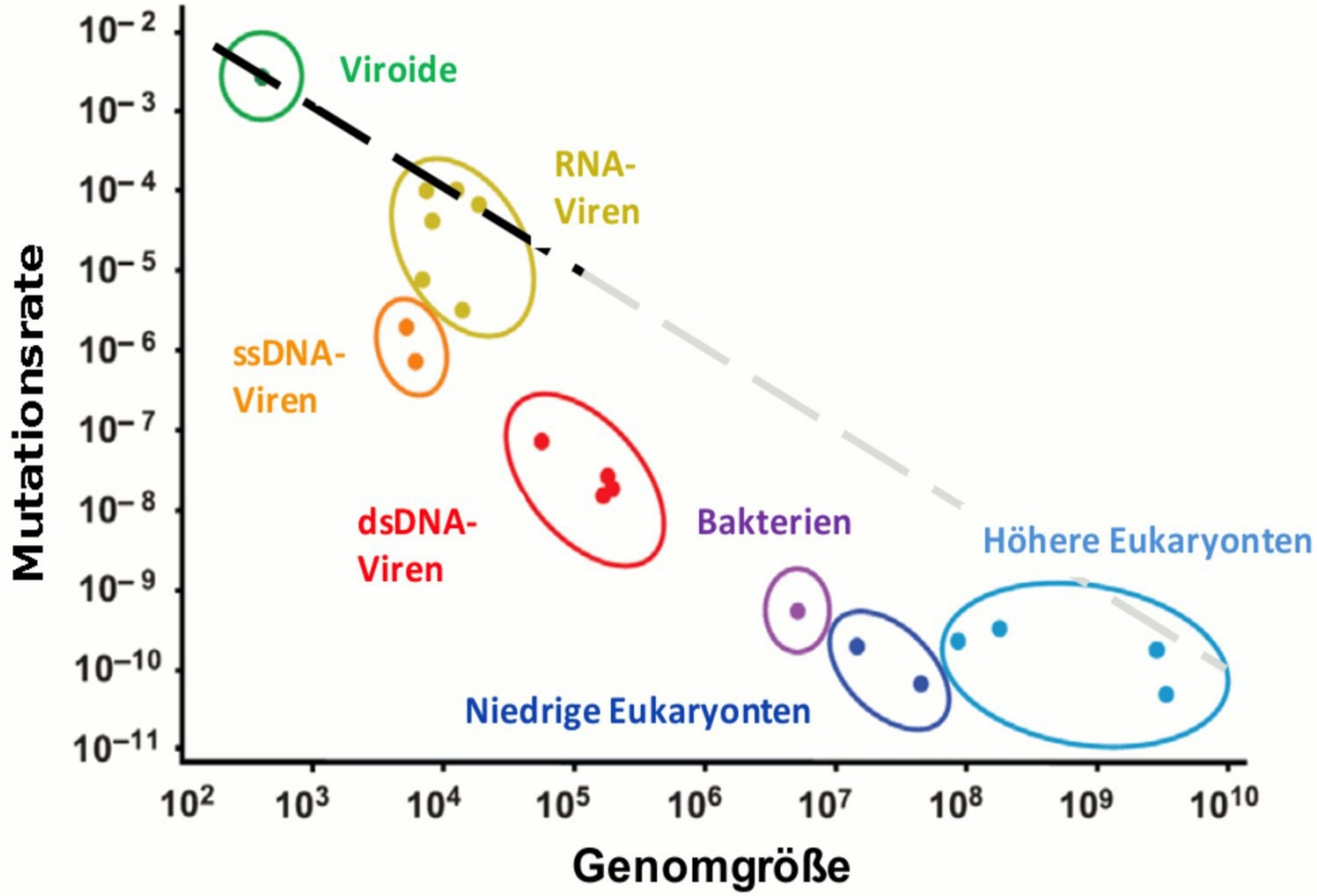


BIONTECH

Es ist auch völlig unbekannt, wie sich die exprimierten Virusbestandteile, also die eine Immunantwort auslösenden Virusproteine, im Körper verteilen und ob sie möglicherweise sogar persistieren. Dies kann nur mit klinischen Langzeitstudien einwandfrei geklärt werden. Unklar ist auch, ob möglicherweise sogar toxische Effekte von den modifizierten, also chemisch abgewandelten Erbgutbausteinen ausgehen.

Nicht vernachlässigt werden darf auch die Tatsache, dass, je nach Verabreichungsweg der Impfung, RNA in den extrazellulären Raum, also den Raum zwischen den Zellen, eingebracht wird. Es ist bekannt, dass extrazelluläre RNA ein prokoagulatorischer und ein die Permeabilität steigernder Faktor ist. Eine gesteigerte Permeabilität von Endothelzellen kann zu Ödemen führen, und eine gesteigerte Blutgerinnung birgt die Gefahr der Bildung von Blutgerinnseln. Erste Daten zeigen, dass auch das SARS-CoV-2 Virus möglicherweise zur Entstehung von Blutgerinnseln führen könnte, so dass eine entsprechende Impfung dies sogar noch verstärken könnte.

Besonders RNA-Viren wie die Coronaviren mutieren sehr schnell. Es stellt sich also die Frage, weshalb sich Menschen, trotz der bisher vollkommen unabsehbaren Risiken, gegen ein Virus impfen lassen sollen, das bei vielen kaum gefährlicher als die Grippe ist und das im nächsten Jahr schon ganz anders aussehen könnte? Es scheint nicht vertretbar, derartige Risiken einzugehen, solange Wirksamkeit wie auch Sicherheit einer solchen Impfung nicht gewährleistet sind



State or country	Population	Confirmed Cases	Recovered Cases	Deaths
Kerala	35 million	4,310	1,046	23
UK	66 million	311,965	N/A	43,575
USA	328 million	2,638,086	811,095	128,103
India	1.38 billion	548,318	321,722	16,475

What changes have been made by government of Kerala to improve healthcare facilities and achieve what many developing countries could only dream of:

- Success with sanitation and drinking water provision
- Kerala has the highest life expectancy in India of 72.5 years and 77.8 years for males and females respectively, due to general improvement in health care facilities
- Kerala has the lowest infant mortality in India
- In 1991, Kerala became the first totally literate state in India
- Everyone is assured access to health care. A primary health care facility in every panchayat (an aggregation of villages), above 1000 in number. Most of them have government run facilities of modern medicine, homeopathy and Ayurveda. People can choose any system of medicine for their treatment. Out of 941 panchayats only 32 don’t have homeopathy at the moment
- Accredited Social Health Activists
- Rapid Action Epidemic Control Cell, Homoeopathy (RAECH) since 2004
- 34 homeopathy hospitals in Kerala alone.

Shailaja: the Minister of Health and Social Welfare of Kerala

Kerala's current health minister Shailaja the "Corona virus slayer",

using homeopathy as her sword

- There have been articles saying that the Hon. Minister Shailaja Teacher who is the Minister of Health and Social Welfare of Kerala is the reason why they have such good statistics when it comes to the pandemic. She has even been called Coronavirus Slayer and Rockstar Health Minister. Perhaps she actually does deserve the accolades because the truth is Kerala came through two Nipah virus epidemics under her watch. This highly contagious disease for which there is no treatment, was a true preparation for managing Covid-19.
- When asked about the Kerala Health Minister, Agi Mary Joseph said "Shailaja is really understanding. Everyone can see that she gets the job done and efficiently."
- Shailaja came from a lineage of freedom fighters with a background as a Communist and she was encouraged to study a Bachelor of Science and a Bachelor of Education. Her grandmother was a campaigner about untouchability. So as a child Shailaja grew up surrounded by activism when the 'Kerala model' was being designed. The foundations of this health activism in India were built from the start to include a decentralised public health system and investment in public education. So the Kerala model was ready to respond to Coronavirus.

High unemployment rates
35 million people in a geographically small state
High proportion of the elderly
Recent financial constraints due to two major floods and Nipah virus outbreaks in 2018 and 2019.

How she did it

- The government's robust response in the pandemic included many not-so-small efforts designed to support and care for its people:
- Each district was asked to dedicate two hospitals to Coronavirus patients, while each medical college set aside 500 beds. Separate entrances and exits were designated
- Thousands of shelters for stranded migrant workers were built
- Accredited Social Health Activists went house to house checking on people and delivered staples
- Distributed millions of cooked meals to those in need
- **Encouraged the use of homeopathy by distributing millions of preventative medicines**
- Provided logistical support to quarantined people to access food and supplies
- Offered counselling
- Negotiated with Internet Service Providers to give better internet data packages for those in isolation.

Shailaja included - and emphasized - the use of homeopathy in Kerala's plan

- Tactics used by Shailaja included encouraging the use of homeopathy. In a recent media meeting, she talked about the need "to improve the immunity and resistance power of each individual not yet positive to Coronavirus, with the help of Homeopathic/ Ayurvedic medicines. That will help them resist the Coronavirus infection, help them to tide over the infection well, if at all they contract it…… everyone should take Homeopathic & Ayurvedic preventative treatments available." [thank you to Dr Sam Punnoose for this translation of a video of the press conference.]
- According to Dr E.S.Rajendran who practices in Kerala "The total number of people who received the homeopathic preventive medicine Ars alb 30 through Kerala government as on June 1st was 10 million. An equal number of people have also received the same through voluntary organisations. The remaining population is expected to receive the preventive medicine in another one month." This distribution was carried out in each district with the help of resident associations and was achievable because there is a huge demand for homeopathy from the people.

Rapid Action Epidemic Control Cell – Homeopathy

- The Government of Kerala started the Rapid Action Epidemic Control Cell Homoeopathy (RAECH) in 2004. RAECH supervised recent epidemic control measures using homeopathy:
- Distributed preventive medicines
- Conducted medical camps
- Designed health awareness programmes
- Conducted seminars throughout Kerala, wherever epidemics break out.
- For the past five years they were successful in ‘
contributing a remarkable role in prevention activities.’ According to RAECH, the efficacy of Homoeopathic prophylaxis medicine in prevention of epidemics was well established during an epidemic of Chikungunea.
- The people and the government of Kerala has appreciated the work of RAECH in prevention of Cholera, Gastroenteritis, Japanese encephalitis, Dengue, and Chikungunea.

Cuba

- India is not the only country using homeopathy as a preventative for COVID-19.
- Cuba with its population of 11.34 million is doing the same.
- Since early April, the Cuban Ministry of Health has been rolling out the combination remedy PrevengHo®Vir as a way to increase resilience in its population to viral diseases and respiratory infections.
- PrevengHo®Vir consists of the remedies: Anas barbariae 200C; Arsenicum album 200C; Bacillinum 30C; Baptisia tinctoria 200C; Eupatorium perfoliatum 200C; Influenzinum 200C; Pyrogenium 200C; Tuberculinum aviaire 200C.
- The head of the Department of Natural and Traditional Medicine when speaking on state television, “It is not a product that has been specifically registered for the coronavirus but is used in the prevention of viral illnesses and acute respiratory diseases.”
- The treatment is being distributed to the entire population through the primary health system and the ‘family doctor’, a professional assigned to each Cuban neighborhood and who directly cares for an average population of about 600 people.
- In spite of a late start, how is Cuba progressing in its fight against COVID-19?
- Wordometer shows that, like India, it still has a surprisingly low incidence of infections in comparison to other highly developed and affluent countries.
- As of today’s update to this article (10th June, 2020), Cuba reports 195 infections per million of population. In contrast, the US reports 6,182 per million and the UK reports 4,260, per million. India still impresses with 199 per million. COVID-19 related deaths per million are reported as: US – 345, UK – 602, India – 6, Cuba – 7.
- This is not the first time Cuba has used homeopathy for the treatment and prevention of epidemics.
- PrevengHo®Vir was also rolled out for the Influenza A (H1N1) epidemic while other homeopathics are regularly used in Cuba’s outbreaks of cholera, Dengue fever, and leptospirosis.

Amantadine disrupts lysosomal gene expression; potential therapy for COVID19”

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bioRxi.v.; doi: https://doi.org/10.1101/2020.04.05.026187

Abstract

- SARS-coronavirus 2 is the causal agent of the COVID-19 outbreak. SARS-Cov-2 entry into a cell is dependent upon binding of the viral spike (S) protein to cellular receptor and on cleavage of the spike protein by the host cell proteases such as Cathepsin L and Cathepsin B. CTSL/B are crucial elements of lysosomal pathway and both enzymes are almost exclusively located in the lysosomes.CTSL disruption offers potential for CoVID-19 therapies. The mechanisms of disruption include: decreasing expression of CTSL, direct inhibition of CTSL activity and affecting the conditions of CTSL environment (increase pH in lysosomes).

- We have conducted a high throughput drug screen gene expression analysis to identify compounds that would downregulate the expression of CTSL/CTSB. One of the top significant results shown to downregulate the expression of the CTSL gene is Amantadine. Amantadine was approved by the US Food and Drug Administration in 1968 as a prophylactic agent for influenza and later for Parkinson’s disease. It is available as a generic drug..

- Amantadine in addition to downregulating CTSL appears to further disrupt lysosomal pathway, hence interfering with the capacity of the virus to replicate. It acts as a lysosomotropic agent altering the CTSL functional environment. We hypothesize that Amantadine could decrease the viral load in SARS-CoV-2 positive patients and as such it may serve as a potent therapeutic decreasing the replication and infectivity of the virus likely leading to better clinical outcomes. Clinical studies will be needed to examine the therapeutic utility of amantadine in COVID-19 infection.

Abreu, G. E. A., Aguilar, M. E. H., Covarrubias, D. H., & Durán, F. R. (2020). **Amantadine as a drug to mitigate the effects of COVID-19.** *Medical Hypotheses*, 109755.

Abstract

The SARS-CoV-2 virus has spread around the world. At this time, there is no vaccine that can help people prevent the spread of coronavirus. We are proposing amantadine as a drug that can be used to mitigate the effects of the virus. It is demonstrated by docking models how amantadine can exert its action on Coronavirus viroporin E.

Amantadine has been used as an antiviral therapy against influenza A, the mechanism that has been proposed is to block the early stage of viral replication. When the viral particle enters the cell, an endosome is formed, which has an acidic pH of 5. The proton channel (viroporin) is formed by the transport protein M2, which carries protons into the virion. This proton pump is necessary to interrupt the macromolecular interactions that keep the integrity of the virion. Amantadine is able to cross the membrane of the endosome and breaks the hydrogen bridges formed by Ala 30 and Gly 34 [4] in that way it can capture protons preventing them from entering the virion, preventing the release of the viral nucleus into the cell. [5]

Smieszek, S. P., Przychodzen, B. P., & Polymeropoulos, M. H. (2020)**. Amantadine disrupts lysosomal gene expression; a hypothesis for COVID19 treatment**. *International Journal of Antimicrobial Agents*, 106004.

Cathepsin L (CTSL) disruption offers potential for CoVID-19 therapies.

- The mechanisms of disruption include: decreasing expression of CTSL, direct inhibition of CTSL activity and affecting the conditions of CTSL environment (increased pH in lysosomes).
- We have conducted a high throughput drug screen gene expression analysis to identify potential compounds that would down regulate the expression of CTSL/CTSB and found amantadine to be one of the top inhibitors.
- Amantadine may act as a lysosomotropic agent and alters the Cathepsin L functional environment.
- Amantadine could decrease the viral load in SARS-CoV-2 positive patients and as such it may serve as a potent therapeutic agent, decreasing the replication and infectivity of the virus likely, leading to better clinical outcomes.
- Genetic variants in CTSL are likely affecting course and outcomes of infected individuals.

Rejdak, K., & Grieb, P. (2020). Adamantanes might be protective from COVID-19 in patients with neurological diseases: multiple sclerosis, parkinsonism and cognitive impairment. *Multiple Sclerosis and Related Disorders*, 102163

Abstract

Facing the outbreak of coronavirus disease 2019 (COVID-19) pandemic, there is an urgent need to find protective or curable drugs to prevent or to stop the course of the coronavirus SARS-CoV-2 infection. Recent evidence accumulates that adamantanes, widely used in different neurological diseases, could be repurposed for COVID-19.

We hereby report on a questionnaire-based study performed to assess severity of COVID-19 in patients suffering from multiple sclerosis (n=10), Parkinson's disease (n=5) or cognitive impairment (n=7). In all patients infection with SARS-CoV-2 was confirmed by rtPCR of nasopharyngeal swabs. They were receiving treatment with either amantadine (n=15) or memantine (n=7) in stable registered doses. All of them had two-week quarantine since documented exposure and none of them developed clinical manifestations of infectious disease. They also did not report any significant changes in neurological status in the course of primary nervous system disease.

Above results warrant further studies on protective effects of adamantanes against COVID-19 manifestation, especially in subjects suffering from neurological disease.

Artemisia annua: trials are needed for COVID-19. *Phytotherapy Research (2020)* Haq, F. U., Roman, M., et al

In December 2019, a number of pneumonia cases associated with 2019 novel coronavirus occurred in Wuhan, China. Later taxonomist name the virus SARS-CoV-2 and disease called COVID-19. No approved vaccine or treatment are available for this virus. Current technical guide is related to address therapeutic option for SARS-CoV-2. COVID-19 is great challenge for scientist across the globe. Bioactive compounds present in *Artemisia annua* against hepatitis B virus, bovine viral diarrhea virus, and Epstein–Barr virus have also shown significant activity against SARS coronavirus that occur in 2002. This agent is cheap and easily available and will be of great value if they have efficacy against SARS-CoV-2. Scientific attention is needed toward this agent to address for the treatment of COVID-19.

Pulmonary fibrosis are observed in SARS coronavirus-2 (SARS-CoV-2) infection with increased severity, mediated by Interleukin-1 (Conti et al., **2020**). Several studies suggesting that oxidative stress is associated with pulmonary diseases and it is likely that the consumption of natural antioxidant are effective in lung fibrosis (Day, **2008**). *A. annua* extract exhibit significant antioxidant activity that is most likely due to its high phenolic content (Ferreira, Luthria, Sasaki, & Heyerick, **2010**). *A. annua* derivatives, artesunate, is a promising novel drug to treat pulmonary fibrosis by inhibiting pro-fibrotic molecules associated with pulmonary fibrosis (Wang, Xuan, Yao, Huang, & Jin, **2015**). The rationale for testing antioxidants and antifibrotic effect in *A. annua* is appealing that might play a key role in lung fibrosis.

Uzun, T., & Toptas, O. (2020). **Artesunate: could be an alternative drug to chloroquine in COVID-19 treatment**?. *Chinese Medicine*, *15*(1), 1-4.

Abstract

SARS (Severe Acute Respiratory Syndrome Coronavirus)-CV-2 (2019-nCov), which showed up in China in December 2019 and spread all over the world, has becomed a serious health problem. An effective, safe and proven treatment has not yet been found. Chloroquine has been recommended by some authors to be used for the treatment of patients infected with this virus however chloroquine may have side effects and drug resistance problems. Artesunate is a semisynthetic derivative of artemisinin, an antimalarial drug. Artesunate was thought to be an effective treatment for covid-19 because of its anti-inflammatory activity, NF-κB (nuclear Factor kappa B)-coronavirus effect and chloroquine-like endocytosis inhibition mechanism.

Conclusion

Artesunate was thought to be an effective treatment for covid-19 because of its the above-mentioned anti-inflammatory activity, NF-κB-coronavirus effect and chloroquine-like endocytosis inhibition mechanism.

Propolis and Melatonin

Maruta, H., & He, H. (2020). **PAK1-blockers: Potential Therapeutics against COVID-19**.

Medicine in Drug Discovery, 100039**.**

ABSTRACT

PAK1 (RAC/CDC42-activated kinase 1) is the major “pathogenic” kinase whose abnormal activation causes a wide variety of diseases/disorders including cancers, inflammation, malaria and pandemic viral infection including influenza, HIV and COVID-19. Since Louis Pasteur who developed a vaccine against rabies in 1885, in general a series of “specific” vaccines have been used for treatment of viral infection, mainly because the majority of pre-existing antibiotics are either anti-bacterial or anti-fungal, thereby being ineffective against viruses in general. However, it takes 12–18 months till the effective vaccine becomes available. Until then ventilator (O2 supplier) would be the most common tool for saving the life of COVID-19 patients. Thus, as alternative potentially more direct “broad-spectrum” signalling mechanism–based COVID-19 therapeutics, several natural and synthetic PAK1-blockers such as propolis, melatonin, ciclesonide, hydroxy chloroquine (HQ), ivermectin, and ketorolac, which are readily available in the market, are introduced here.

Baicalin and Scutalaria (Helmkraut)

Su, H., Yao, S., Zhao, W., Li, M., Liu, J., Shang, W., ... & Liu, H. (2020). **Discovery of baicalin and baicalein as novel, natural product inhibitors of SARS-CoV-2** 3CL protease in vitro. *bioRxiv*.

Abstract: Human infections with severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) cause coronavirus disease 19 (COVID-19) and there is currently no cure. The 3C-like protease (3CLpro), a highly conserved protease indispensable for replication of coronaviruses, is a promising target for development of broad-spectrum antiviral drugs. To advance the speed of drug discovery and development, we investigated the inhibition of SARS-CoV-2 3CLpro by natural products derived from Chinese traditional medicines. Baicalin and baicalein were identified as the first non-covalent, non-peptidomimetic inhibitors of SARS-CoV-2 (3CLpro) and exhibited potent antiviral activities in a cell-based system. Remarkably, the binding mode of baicalein with SARS-CoV-2 3CLpro determined by X-ray protein crystallography is distinctly different from those of known inhibitors. Baicalein is perfectly ensconced in the core of the substrate-binding pocket by interacting with two catalytic residues, the crucial S1/S2 subsites and the oxyanion loop, acting as a “shield” in front of the catalytic dyad to prevent the peptide substrate approaching the active site. The simple chemical structure, unique mode of action, and potent antiviral activities *in vitro*, coupled with the favorable safety data from clinical trials, emphasize that baicalein provides a great opportunity for the development of critically needed anti-coronaviral drugs.

Alschuler, L., Weil, A., Horwitz, R., Stamets, P., Chiasson, A. M., Crocker, R., & Maizes, V. (2020). **Integrative considerations during the COVID-19 pandemic.** *Explore (New York, NY)*.

Risk reduction

• **Adequate sleep**: Shorter sleep duration increases the risk of infectious illness. One study found that less than 5 h of sleep (monitored over 7 consecutive days) increased the risk of developing rhinovirus associated cold by 350% (odds ratio [OR] = 4.50, 95% confidence interval [CI], 1.08–18.69) when compared to individuals who slept at least 7 h per night.2 Important specifically to COVID-19 infection, sleep deprivation increases CXCL9 levels. CXCL9 is a monokine, induced by interferon, which increases lymphocytic infiltration,3 and which is implicated in NLRP3 inflammasome activation.4 Adequate sleep also ensures the secretion of melatonin, a molecule which may play a role in reducing coronavirus virulence (see **Melatonin** below).

• **Stress management**: Psychological stress disrupts immune regulation and is specifically associated with increased pro-inflammatory cytokines such as IL-6.5 Acute stress in mice increases IL-1B via NLRP3 inflammasome activation.6 Various mindfulness techniques such as meditation, breathing exercises, guided imagery, etc. reduce stress, reduce activated NFkB, may reduce CRP and do not appear to increase inflammatory cytokines.7

• **Zinc**: Coronavirus appear to be susceptible to the viral inhibitory actions of zinc. Zinc may prevent coronavirus entry into cells8 and appears to reduce coronavirus virulence.9 Typical daily dosing of zinc is 15 mg–30 mg daily with lozenges potentially providing direct protective effects in the upper respiratory tract.

• **Vegetables and fruits +/- isolated Flavonoids**: Many flavonoids have been found, in vitro, to reduce NLRP3 inflammasome signaling, and consequently NFkB, TNF-a, IL-6, IL-1B and IL-18 expression.10 Some of the specific flavonoids which have been shown to have this effect, and which can be found in the diet and/or dietary supplements include:

- ○ **baicalin** 11 and **wogonoside** 12 from **Scutellaria baicalensis** (Chinese skullcap);
- ○ **liquiritigenin** 13 from **Glycyrrhiza glabra** (licorice)
- ○ **dihydroquercetin** 14 and **quercetin** 15 found in **onions** and **apples**. Of note, **quercetin** also functions as a **zinc ionophore, chelating zinc** and transporting it into the **cell cytoplasm**.16 This could, theoretically, enhance the anti-viral actions of **zinc**.
- ○ **myricetin** 17 found in **tomatoes, oranges, nuts,** and **berries**
- ○ **apigenin** 18 (found in **Matricaria recutita (Chamomile), parsley** and **celery**.
- ○ **curcumin** 19 , 20 (found in **turmeric** root)
- ○ **epigallocatechine gallate (EGCG)** from green tea. EGCG has been found to have antiviral activity against a wide range of DNA and RNA viruses, especially in the early stages of infection by preventing viral attachment, entry and membrane fusion21 EGCG, link **quercetin**, is a **zinc ionophore**,16 thereby potentially enhancing the antiviral actions of zinc.

- **Vitamin C**: Like flavonoids, ascorbic acid inhibits NLRP3 inflammasome activation.22 Clinical trials have found that vitamin C shortens the frequency, duration and severity of the common cold and the incidence of pneumonia.23 Typical daily dosing of vitamin C ranges from 500 mg to 3000 mg daily with even higher doses utilized during times of acute infection.
- **Melatonin**: Melatonin has been shown to inhibit NFkB activation and NLRP3 inflammasome activation.24 In fact, the age-related decline in melatonin production is one proposed mechanism to explain why children do not appear to have severe symptoms as frequently as do older adults. Melatonin also reduces oxidative lung injury and inflammatory cell recruitment during viral infections.25 Typical dosing of melatonin varies widely from 0.3 mg to 20 mg (the latter used in the oncological setting).
- **Sambucus nigra (Elderberry):** There is preclinical evidence that elderberry inhibits replication and viral attachment of Human coronavirus NL63 (HCoV-NL63),26 which although different than COVID-19, is still a member of the same coronavirus family. Sambucus appears most effective in the prevention or early stage of corona virus infections.27 Of note, Sambucus significantly increases inflammatory cytokines, including IL-B128 so should be discontinued with symptoms of infection (or positive test). An evidence-based systematic review of elderberry conducted by the Natural Standard Research Collaboration concluded that there is level B evidence to support the use of elderberry for influenza29 which may or may not be relevant to COVID-19 prevention. Typical dosing of 2:1 elderberry extract is 10 mL–60 mL daily for adults and 5mL–30 mL daily for children.

During symptoms of infection or positive test for COVID-19

To avoid: Given the integral role of inflammatory cytokines (namely IL-1B and IL-18) in the pathogenicity of COVID-19, as well as the impossibility of predicting which individuals are susceptible to the “cytokine storm”, technically called secondary hemophagocytic lymphohistiocytosis, or sHLH, it appears to be prudent to avoid high and regular use of immunostimulatory agents which increase these cytokines. Again, in the absence of human clinical data, **caution is warranted with the following immune activating agents** due to preclinical evidence of increased IL-1B and/or IL-18 production in infected immune cells:

- Sambucus nigra (Elderberry)34 (i.e. Elderberry may be used for prevention but should be stopped if any symptoms of infection appear.)
- Isolated polysaccharide extracts from medicinal mushrooms or mycelium35 , 36
- Echinacea angustifolia and E. purpurea37 , 38
- Larch arabinogalactan39
- Vitamin D40 , 41

Likely safe: Other commonly used natural immunostimulatory and antiviral agents including the following do not appear to increase IL-1B or IL-18 as a part of their immunomodulatory actions. Several of these, in fact, reduce these cytokines and may restore immune homeostasis. These are, therefore, likely safe to use both prior to, and during, COVID-19 infection. Whether these agents mitigate the symptoms or virulence of COVID-19 is unknown and therefore the benefit of these agents during COVID-19 infection is unknown.

- Allium sativum (garlic)42
- Quercetin43
- Astragalus membranaceus44 , 45
- Mycelium mushroom extracts46 , 47 as well as fruiting body extract of Agaricus blazeii48
- Mentha piperita (peppermint)49
- Andrographis paniculata50
- Green tea and green tea extracts51 , 52
- Zinc53
- Vitamin A54 [note: This study found that 25,000iu daily for 4 months in 84 women resulted in lower serum IL-1b and IL-1b/IL-4 ratios in obese women. Oral vitamin A can causes hypervitaminosis A especially at doses greater than 25,000 IU daily for more than 6 years or 100,000iu daily for more than 6 months.55 Monitoring liver function tests for hepatotoxicity during vitamin A dosing of any duration, even at lower doses, is advised given variable individual sensitivity.]

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