GlobalResearch
Center for Research on Globalization

Covid Vaccines: Cardiac Damage by LNPs, mRNA and Spike Protein

Four new studies shine light on how the heart is being damaged by Pfizer, Moderna, Novavax COVID-19 Vaccines

By Dr. William Makis

Theme: Science and Medicine

Global Research, October 30, 2023

COVID Intel 28 October 2023

All Global Research articles can be read in 51 languages by activating the Translate Website button below the author's name.

To receive Global Research's Daily Newsletter (selected articles), click here.

Click the share button above to email/forward this article to your friends and colleagues. Follow us on Instagram and Twitter and subscribe to our Telegram Channel. Feel free to repost and share widely Global Research articles.

***

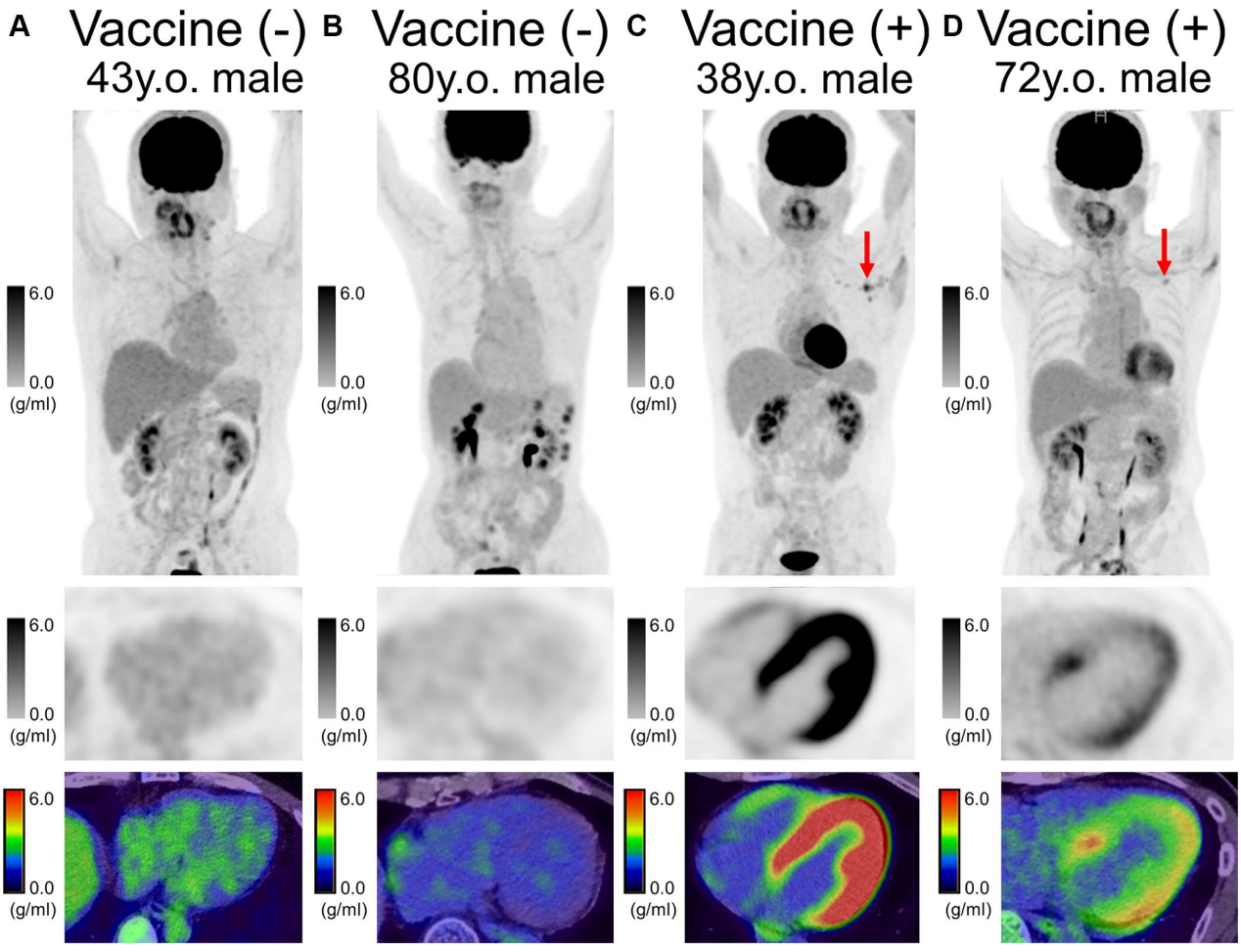


Image Source: Sep.19, 2023 – Nakahara et al

Papers reviewed

- Oct. 12, 2023 – Schreckenberg et al – Cardiac side effects of RNA-based SARS-CoV-2 vaccines: Hidden cardiotoxic effects of mRNA-1273 and BNT162b2 on ventricular myocyte function and structure

- Sep. 19, 2023 – Nakahara et al – Assessment of Myocardial ^{18}F-FDG Uptake at PET/CT in Asymptomatic SARS-CoV-2–vaccinated and Nonvaccinated Patients
- Aug. 17, 2023 – Parry et al – 'Spikeopathy': COVID-19 Spike Protein Is Pathogenic, from Both Virus and Vaccine mRNA
- May 5, 2023 – Barmada et al – Cytokinopathy with aberrant cytotoxic lymphocytes and profibrotic myeloid response in SARS-CoV-2 mRNA vaccine–associated myocarditis

BJP British Journal of Pharmacology

RAPID COMMUNICATION

Cardiac side effects of RNA-based SARS-CoV-2 vaccines: Hidden cardiotoxic effects of mRNA-1273 and BNT162b2 on ventricular myocyte function and structure

Rolf Schreckenberg, Nadine Woitasky, Nadja Itani, Laureen Czech, Péter Ferdinandy, Rainer Schulz

First published: 12 October 2023 | https://doi.org/10.1111/bph.16262

Experimental Approach

As persuasive theories for the underlying pathomechanisms have yet to be developed, this study investigated the effect of mRNA-1273 and BNT162b2 on the function, structure, and viability of isolated adult rat cardiomyocytes over a 72 h period.

Key Results

In the first 24 h after application, both mRNA-1273 and BNT162b2 caused neither functional disturbances nor morphological abnormalities. After 48 h, expression of the encoded spike protein was detected in ventricular cardiomyocytes for both mRNAs. At this point in time, mRNA-1273 induced arrhythmic as well as completely irregular contractions associated with irregular as well as localized calcium transients, which provide indications of significant dysfunction of the cardiac ryanodine receptor (RyR2). In contrast, BNT162b2 increased cardiomyocyte contraction via significantly increased protein kinase A (PKA) activity at the cellular level.

Conclusions and Implications

Here we demonstrated for the first time, that in isolated cardiomyocytes, both mRNA-1273 and BNT162b2 induce specific dysfunctions that correlate pathophysiologically to cardiomyopathy. Both RyR2 impairment and sustained PKA activation may significantly increase the risk of acute cardiac events.

Oct. 12, 2023 – Schreckenberg et al – Cardiac side effects of RNA-based SARS-CoV-2 vaccines: Hidden cardiotoxic effects of mRNA-1273 and BNT162b2 on ventricular myocyte function and structure

- Germany/Hungary study
- studied Pfizer & Moderna COVID-19 mRNA jab effects on adult rat heart cells
- at 24 hours, heart cells looked and functioned normally (Pfizer and Moderna)
- at 48 hours, Moderna treated heart cells had arrhythmic, irregular, partially peristaltic contracting myocytes
- at 72 hours, Moderna treated heart cells almost completely stopped functioning
- at 48 hours, Pfizer treated heart cells contracted rhythmically and uniformly, but showed increase in cell shortening, contraction velocity, relaxation velocity
- at 72 hours, Pfizer treated heart cells, only 27% contract normally.
- mRNA detected all over the heart, taken up by heart cells but also non-heart cells like endothelial cells and fibroblasts (more mRNA uptake than heart cells).
- spike protein was detected at 48 hours for Pfizer and Moderna
- Discussion:
    - Pfizer and Moderna mRNA sequences are different, LNPs are different.
    - LNP-mRNA didn't damage heart cells in this study, but not possible to make any conclusions as LNP controls are not available to study
    - enough spike protein must be translated to cause heart cell damage by both Pfizer and Moderna
    - Pfizer and Moderna cause abnormalities in heart cell function but through different mechanisms
        - Moderna causes dysfunction of calcium channels leading to arrhythmic and irregular contractions
        - Pfizer messes with PKA (protein Kinase A), causes sustained PKA activation, stimulation of beta-adrenergic signaling – increased heart rate
        - Increasing Pfizer dose 3x doesn't give Moderna effects at all.
    - Both Pfizer and Moderna mechanisms are risk factors for sudden cardiac death, ventricular tachyarrhythmias and contractile dysfunction.
    - Both Pfizer and Moderna cause cardiomyopathy, which is clinically diagnosed as myocarditis or pericarditis.

Sep. 19, 2023 – Nakahara et al – Assessment of Myocardial ^{18}F-FDG Uptake at PET/CT in Asymptomatic SARS-CoV-2–vaccinated and Nonvaccinated Patients

- Japanese retrospective study looked at imaging vaccinated and unvaccinated patients with radioactively labeled sugar (FDG) and PET/CT (normally used to diagnose cancer or inflammatory diseases)
- Vaccinated patients had higher FDG uptake than unvaccinated for up to 6 months after their 2nd mRNA dose, but not longer than 6 months.
- Pfizer patients had similar uptake to Moderna patients
- Abnormal uptake in lymph nodes was seen up to 4 months
- Conclusions:
    - Pfizer and Moderna cause heart inflammation that can last up to 6 months after last dose (although this is not the ideal imaging test for this)
    - Pfizer and Moderna cause a similar degree of heart inflammation
    - Pfizer and Moderna also cause inflammation in the lymph nodes on

the injected side for up to 4 months

biomedicines

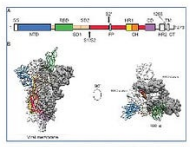
MDPI

Review

'Spikeopathy': COVID-19 Spike Protein Is Pathogenic, from Both Virus and Vaccine mRNA

Biomedicines **2023**, *11*, 2287

Peter I. Parry [1,2,*], Astrid Lefringhausen [3], Conny Turni [4], Christopher J. Neil [5], Robyn Cosford [3], Nicholas J. Hudson [6] and Julian Gillespie [3]



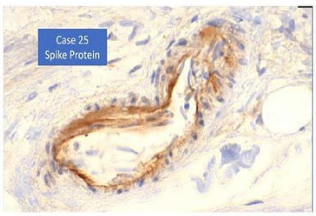


Table 1. Studies demonstrating persistence of vector-based vaccine constituents and/or derivative spike protein.

Author	Constituents/Tissue Type/Assay Technique	Duration Measured
Animal		
Pfizer (Japanese MoH) 2020 [46]	Radiolabelled LNP in plasma and tissues	140 h–14 days
Human		
Ogata et al. (2021) [52]	Spike protein and S1 subunit (assay)	3 days
Bansal et al. (2021) [57]	Spike Protein	4 months
Fertig et al. (2022) [50]	LNPs and mRNA	15 days
Röltgen et al. (2022) [53]	mRNA and Spike Protein in ipsilateral lymph nodes; 2–7 days post dose in blood	60 days
Yamamoto et al. (2022) [58]	Spike Protein in skin	3 months
Yonker et al. (2023) [54]	Spike Protein in blood	1–19 days *in cases of myocarditis*
Castruita et al. (2023) [51]	mRNA in plasma	28 days

Table 4-2. Mean concentration of radioactivity (sexes combined) in tissue and blood following a single IM dose of 50 µg mRNA/rat

Sample	Total Lipid Concentration (µg lipid equiv/g (or mL))						
	0.25 min	1 h	2 h	4 h	8 h	24 h	48 h
Adipose tissue	0.057	0.100	0.126	0.128	0.093	0.084	0.181
Adrenal glands	0.27	1.48	2.72	2.89	6.80	13.77	18.21
Bladder	0.041	0.130	0.146	0.167	0.148	0.247	0.365
Bone (femur)	0.091	0.195	0.266	0.276	0.340	0.342	0.687
Bone marrow (femur)	0.48	0.96	1.24	1.24	1.84	2.49	3.77
Brain	0.045	0.100	0.138	0.115	0.073	0.069	0.068
Eyes	0.010	0.035	0.052	0.067	0.059	0.091	0.112
Heart	0.28	1.03	1.40	0.99	0.79	0.45	0.55
Injection site	128.3	393.8	311.2	338.0	212.8	194.9	164.9
Kidneys	0.39	1.16	2.05	0.92	0.59	0.43	0.42
Large intestine	0.013	0.048	0.09	0.29	0.65	1.10	1.34
Liver	0.74	4.62	10.97	16.55	26.54	19.24	24.29
Lung	0.49	1.21	1.83	1.50	1.15	1.04	1.09
Lymph node (mandibular)	0.064	0.189	0.290	0.408	0.534	0.554	0.727
Lymph node (mesenteric)	0.050	0.146	0.530	0.489	0.689	0.985	1.366
Muscle	0.021	0.061	0.084	0.103	0.096	0.095	0.192
Ovaries (females)	0.104	1.34	1.64	2.34	3.09	5.24	12.26
Pancreas	0.081	0.207	0.414	0.380	0.294	0.358	0.599
Pituitary gland	0.339	0.645	0.868	0.854	0.405	0.478	0.694
Prostate (males)	0.061	0.091	0.128	0.157	0.150	0.183	0.170
Salivary glands	0.084	0.193	0.255	0.220	0.135	0.170	0.264
Skin	0.013	0.208	0.159	0.145	0.119	0.157	0.253
Small intestine	0.030	0.221	0.476	0.879	1.279	1.302	1.472
Spinal cord	0.043	0.097	0.169	0.250	0.106	0.085	0.112
Spleen	0.33	2.47	7.73	10.30	22.09	20.08	23.35
Stomach	0.017	0.065	0.115	0.144	0.268	0.152	0.215
Testes (males)	0.031	0.042	0.079	0.129	0.146	0.304	0.320
Thymus	0.088	0.243	0.340	0.335	0.196	0.207	0.331
Thyroid	0.155	0.536	0.842	0.851	0.544	0.578	1.000
Uterus (females)	0.043	0.203	0.305	0.140	0.287	0.289	0.456
Whole blood	1.97	4.37	5.40	3.05	1.31	0.91	0.42
Plasma	3.96	8.13	8.90	6.50	2.36	1.78	0.81
Blood:plasma ratio	0.815	0.515	0.550	0.510	0.555	0.530	0.540

Aug. 17, 2023 – Parry et al – 'Spikeopathy': COVID-19 Spike Protein Is Pathogenic, from Both Virus and Vaccine mRNA

- SARS-CoV-2 spike protein is pathogenic, whether from the virus, mRNA or adenovectorDNA vaccines.
- Biodistribution rodent study data show lipid nanoparticles carry mRNA to all organs and cross blood-brain and blood-placenta barriers. Some of these tissues are likely to be impervious to viral infection; therefore, the biohazard is particularly from vaccination.
- Lipid-nanoparticles have inflammatory properties.
- Modification of mRNA with N1-methylpseudouridine for increased stability leads to the production of spike proteins for months. It is uncertain how many cells and from which organs mRNA spike proteins are produced, and therefore, the exact effective dose delivered per vaccine vial is unknown.
- Long-term fate of mRNA within cells is currently unknown.
- mRNA and adenovector DNA vaccines act as 'synthetic viruses'.
- In the young and healthy, and even in many older individuals with vulnerable comorbidities, the encoding-based COVID-19 vaccines will likely transfect a far more diverse set of tissues than infection by the virus itself.
- Evidence suggests reverse transcription of mRNA into a DNA copy is possible. This further suggests the possibility of intergenerational transmission if germline cells incorporate the DNA copy into the host genome.
- Production of foreign proteins such as spike protein on cell surfaces can induce

autoimmune responses and tissue damage. This has profoundly negative implications for any future mRNA-based drug or vaccine.

- Spike protein exerts its pathophysiological effects ('spikeopathy') via several mechanisms that lead to inflammation, thrombogenesis, and endotheliitis-related tissue damage and prion-related dysregulation.
- Interaction of the vaccine-encoded spike protein with ACE-2, P53 and BRCA1 suggests a wide range of possible biological interference with oncological potential.
- Adverse event data from official pharmacovigilance databases, an FDA-Pfizer report obtained via FOI, show high rates and multiple organ systems affected: primarily neurological, cardiovascular, and reproductive.
- Pfizer and Moderna mRNA COVID-19 vaccines' clinical trial data independently interpreted has been peer-review and published to show an unfavourable risk/benefit, especially in the non-elderly. The risks for children clearly outweigh the benefits.
- Repeated COVID-19 vaccine booster doses appear to induce tolerance and may contribute to recurrent COVID-19 infection and 'long COVID'.
- Treatment modalities for 'spikeopathy'-related pathology in many organ systems, require urgent research and provision to millions of sufferers of long-term COVID-19 vaccine injuries.

Gene-based technologies:

- unprecedented number of adverse events appears to be associated with the spike proteins produced by the gene-based technologies employed by Pfizer, Moderna, AstraZeneca, J&J
- Non-western countries use small quantities of gene-based vaccines: Sputnik V and EpiVacCorona COVID-19 vaccines in Russia, iNCOVACC in India, and Convidecia in China – but majority are traditional protein-based or inactivated virus non-genetic vaccines.
- mRNA never used before (only in experimental settings, to treat metastatic cancer)
- viral-vectorDNA vaccines had limited use in Ebola, Dengue, Japanese encephalitis
- Operation Warp Speed / Department of Defense – many safety testing and toxicology protocols were bypassed to get Emergency Use Authorization status.
- Pfizer biodistribution study (42 rats injected with 50ug mRNA, 21 rates 100 ug)
    - by 48hr, 75% of the injection left the injection site for elsewhere
    - LNPs go mostly to liver & spleen, but also everywhere else
    - small mRNA quantities in liver & lymph nodes can produce high levels of spike protein – can't predict spike production
- mRNA found in blood plasma at 28 days, in lymph nodes at 60 days after jab.
- LNP-mRNA complexes are around 100nm in size, should be processed by liver but they're bound by macrophages (Kupffer cells) which slows down their processing
- Pfizer & Moderna LNPs are significantly inflammatory on their own
- Novavax has spike proteins bound to a lipid nanoparticle – can cause myocarditis (the nanoparticle itself could be causing the myocarditis)
- Astrazeneca vector DNA also found distantly (bone marrow, liver, spleen, lung)
- AstraZeneca spike protein has been found in clots and brain vessel walls

Traditional Vaccines in India and China Not Causing High Number of Adverse Events:

- Traditional vaccines: inactivated virus vaccine technologies such as Covaxin manufactured by Bharat Biotech in India, and CoronaVac made by Sinovac in China
- also traditional recombinant protein-based COVID-19 vaccines such as Spikogen, jointly developed by Australian and Iranian-based companies
- Traditional COVID-19 vaccines have not produced the high rates of adverse event reports that characterize the gene-based COVID-19 vaccines.
- This is further evidence that the risk is in the body-wide biodistribution and prolonged production of spike proteins.
- It points to pathogenicity of the spike protein and, given the evidence described above, also the lipid-nanoparticle carrier matrix.

Autoimmune Risk of Foreign Antigens Presented by the Body's Own Cells

- spike protein is innately toxic
- even if it wasn't toxic, it is still foreign and could produce autoimmune damage
- LNP delivers mRNA to all organs
- expression of spike on cell surfaces and as a soluble protein within organs and blood stream induces T-cell destruction of cells, and B-cell antibodies that can cause immune complex deposition further damaging tissues

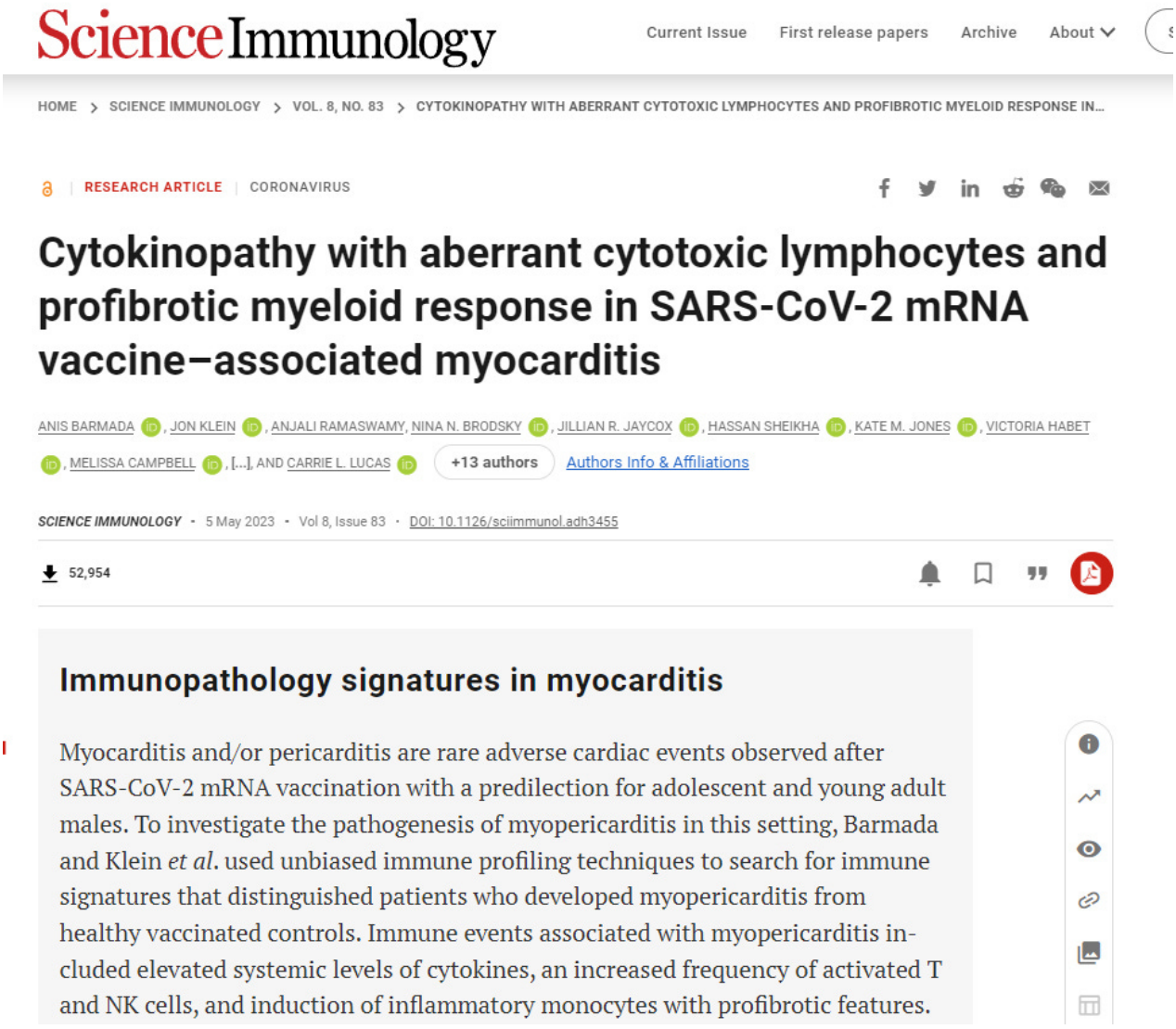
Virus Spike vs Vaccine Spike

- natural course of new pandemic viruses is to become more infectious and less pathogenic with time
- Omicron has been highly infectious but significantly less pathogenic than original Wuhan strain or delta
- If a person suffers wide biodistribution of LNP/mRNA, they produce much more spike than with natural virus – especially if young and healthy
- The elderly and those with co-morbidities have greater risk of serious COVID infection deep in the lungs and systemically (unlike young people)

Cardiovascular Pathogenesis

- there are 432 COVID-19 Vaccine Cardiac Injury papers published (myocarditis, pericarditis, cardiomyopathy, myocardial infarction, hypertension, aortic dissection, POTS, tachycardia and conduction disturbance"
- Yonker et al found free spike protein in blood of 16 young people who developed post vaccine myocarditis
- Avolio et al found spike disrupts heart cell function via CD147 receptor
- Cao et al found in a mouse study spike causes cardiac fibrosis and myocardial contractile impairment that gives rise to cardiomyopathy
- Baumeier et al looked at 15 cases with biopsy and raised the issue whether myocarditis is autoimmune
- Barmada et al ruled out spike protein molecular mimicry
- Spike protein myocarditis has also been reported with AstraZeneca, J&J and Novavax

- Myocarditis has been grossly underestimated, Thailand study shows 3.5% (1 in 30) for male adolescents and Swiss study (Muller) shows 2.8%. (1 in 35)
- Subclinical myocarditis inducing cardiac fibrosis as foci for later arrhythmia under stress is a possible explanation for the epidemic of sudden deaths in youths and young to middle-aged adults since the advent of the COVID-19 vaccines
- Manno et al studied 13 patients, median age 15 years, affected by myocarditis or pericarditis after COVID-19 mRNA Vaccine (11 after Pfizer, 2 after Moderna) – at 3 months follow-up, most still showed persistent myocardial injury.



May 5, 2023 – Barmada et al – Cytokinopathy with aberrant cytotoxic lymphocytes and profibrotic myeloid response in SARS-CoV-2 mRNA vaccine–associated myocarditis

- studied 23 patients with vaccine associated myocarditis and/or pericarditis
- cohort was 87% male and average age 17 years
- no evidence of eosinophilia or elevated Th2 cytokines – so not a hypersensitivity or eosinophilic myocarditis
- no evidence of cardiac targeted autoantibodies, no B-cell clonal expansion or somatic hypermutation – no evidence of autoimmune myocarditis
- found a systemic cytokinopathy and activated cytotoxic lymphocytes
    - NK (natural killer) cells were activated and dysregulated

        - found elevated serum IL-15 (potent activator of NK and T cells)
        - found elevated chemokines (CXCL10, CCL4) which stimulate CXCR3 and CCR5 receptors on T-cells – play key role in activated T-cell infiltration of cardiac tissue
        - found no monoclonal expansion = antigen independent, cytokine dependent activation after vaccination
    - Imaging done months after vaccination showed persistent cardiac abnormalities, suggesting cardiac fibrosis.
    - supported by cardiac biopsy reports showing macrophage infiltration of heart tissue
    - why worse after 2nd dose? – significant increase in IL-15 and CXCL10 in some people that drives heart inflammation
    - LNP also highly inflammatory, but through different cytokines – IL-1b and IL-6, and it varies depending on type of LNP and mRNA
    - LNPs may be contributing to heart inflammation

My Take…

These four studies, all published in the last 4 months, add to the growing body of evidence of COVID-19 Vaccine Injury to the heart.

I will summarize the key findings as follows:

- Lipid Nanoparticles (LNPs) with mRNA are delivered throughout the body, including the heart, and they can be found throughout the heart, in cardiac cells as well as non-cardiac cells.
- LNPs increase certain inflammatory cytokines that may contribute to heart inflammation (varies with type of LNP and mRNA inside)
- Novavax nanoparticles are also inflammatory and can cause heart inflammation
- Pfizer & Moderna spike proteins are different, their LNPs are different
- Pfizer & Moderna modified mRNA is long-lasting – found in blood plasma at 28 days, in lymph nodes at 60 days after jab
- Vaccine spike production is unpredictable, small amounts of mRNA in distant locations can produce high quantities of spike protein
- Myocarditis: Can be caused by Pfizer, Moderna, AstraZeneca, J&J, Novavax – the spike protein is the problem that's causing heart inflammation and all of these COVID-19 vaccines produce spike protein.
- Both Pfizer and Moderna spike proteins impair heart cell function, but in completely different ways, once enough spike protein is made by heart cells
- Both Pfizer and Moderna spike proteins cause cardiomyopathy which is clinically diagnosed as myocarditis or pericarditis
- 3x dose of Pfizer mRNA does not produce effects seen with Moderna, it just worsens Pfizer effects
- On metabolic imaging (FDG PET/CT) the heart inflammation caused by Pfizer and Moderna looks similar and can last up to 6 months
- On metabolic imaging (FDG PET/CT), axillary lymph node inflammation on the side of mRNA injection, can last up to 4 months.
- myocarditis is not an autoimmune process, it is a cytokinopathy
    - Pfizer & Moderna vaccination increases systemic inflammatory cytokines, some of which stimulate cytotoxic NK cells and T-cells

which infiltrate cardiac tissue and cause inflammation
        - Pfizer & Moderna spike proteins ALSO directly impair heart cell function by affecting contractility via sustained stimulation of Protein Kinase A (Pfizer) or messing with calcium channels (Moderna)
    - Imaging done months after vaccination shows cardiac abnormalities persist –cardiac fibrosis (scarring), which increases risk of arrhythmia that can lead to sudden cardiac death.
    - risk of COVID-19 mRNA Vaccine myocarditis is as high as 1 in 30 or 1 in 35 per one dose of vaccine.

Many questions still remain:

- who is at risk of developing myocarditis and why? More common in young males.
- LNPs on their own probably contribute to myocarditis, but how?
- What is the best method of screening for mRNA induced subclinical myocarditis (when there are no symptoms)?
- What prophylactic supplements or treatments can be given to COVID-19 Vaccinated individuals to reduce the risk of, or prevent sudden cardiac arrest and death?

*

Note to readers: Please click the share button above. Follow us on Instagram and Twitter and subscribe to our Telegram Channel. Feel free to repost and share widely Global Research articles.

Dr. William Makis is a Canadian physician with expertise in Radiology, Oncology and Immunology. Governor General's Medal, University of Toronto Scholar. Author of 100+ peer-reviewed medical publications.

The Worldwide Corona Crisis, Global Coup d'Etat Against Humanity

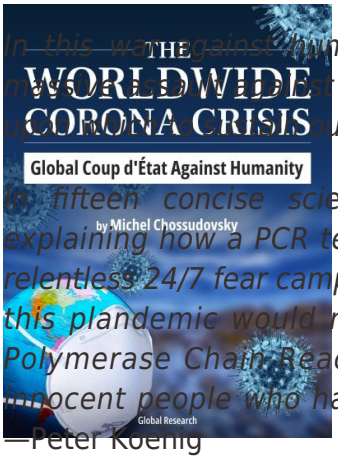
by Michel Chossudovsky

Michel Chossudovsky reviews in detail how this insidious project "destroys people's lives". He provides a comprehensive analysis of everything you need to know about the "pandemic" — from the medical dimensions to the economic and social repercussions, political underpinnings, and mental and psychological impacts.

"My objective as an author is to inform people worldwide and refute the official narrative which has been used as a justification to destabilize the economic and social fabric of entire countries, followed by the imposition of the "deadly" COVID-19 "vaccine". This crisis affects humanity in its entirety: almost 8 billion people. We stand in solidarity with our fellow human beings and our children worldwide. Truth is a powerful instrument."

Reviews

This is an in-depth resource of great interest if it is the wider perspective you are motivated to understand a little better, the author is very knowledgeable about geopolitics and this comes out in the way Covid is contextualized. —Dr. Mike Yeadon



In this war against humanity in which we find ourselves, in this singular, irregular and [illegible] liberty and the goodness of people, Chossudovsky's book is a rock [illegible] our fight. –Dr. Emanuel Garcia

In fifteen concise science-based chapters, Michel traces the false covid pandemic, explaining how a PCR test, producing up to 97% proven false positives, combined with a relentless 24/7 fear campaign, was able to create a worldwide panic-laden "plandemic"; that this plandemic would never have been possible without the infamous DNA-modifying Polymerase Chain Reaction test – which to this day is being pushed on a majority of innocent people who have no clue. His conclusions are evidenced by renown scientists. —Peter Koenig

Professor Chossudovsky exposes the truth that "there is no causal relationship between the virus and economic variables." In other words, it was not COVID-19 but, rather, the deliberate implementation of the illogical, scientifically baseless lockdowns that caused the shutdown of the global economy. –David Skripac

A reading of Chossudovsky's book provides a comprehensive lesson in how there is a global coup d'état under way called "The Great Reset" that if not resisted and defeated by freedom

loving people everywhere will result in a dystopian future not yet imagined. Pass on this free gift from Professor Chossudovsky before it's too late. You will not find so much valuable information and analysis in one place. –Edward Curtin

ISBN: 978-0-9879389-3-0, Year: 2022, PDF Ebook, Pages: 164, 15 Chapters

~~Price: $11.50~~ FREE COPY! Click here (docsend) and download.

We encourage you to support the eBook project by making a donation through Global Research's DonorBox "Worldwide Corona Crisis" Campaign Page.

The original source of this article is COVID Intel
Copyright © Dr. William Makis, COVID Intel, 2023

Comment on Global Research Articles on our Facebook page

Become a Member of Global Research

Articles by: Dr. William Makis

Disclaimer: The contents of this article are of sole responsibility of the author(s). The Centre for Research on Globalization will not be responsible for any inaccurate or incorrect statement in this article. The Centre of Research on Globalization grants permission to cross-post Global Research articles on community internet sites as long the source and copyright are acknowledged together with a hyperlink to the original Global Research article. For publication of Global Research articles in print or other forms including commercial internet sites, contact: publications@globalresearch.ca

www.globalresearch.ca contains copyrighted material the use of which has not always been specifically authorized by the copyright owner. We are making such material available to our readers under the provisions of "fair use" in an effort to advance a better understanding of political, economic and social issues. The material on this site is distributed without profit to those who have expressed a prior interest in receiving it for research and educational purposes. If you wish to use copyrighted material for purposes other than "fair use" you must request permission from the copyright owner.

For media inquiries: publications@globalresearch.ca