The Daily COVID-19 Literature Surveillance Summary

March 05, 2021

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COVID-19 Daily Literature Surveillance

COVID19LST

Bringing you real time, distilled information for guiding best practices during the COVID-19 pandemic

LEVEL OF EVIDENCE

Oxford Centre for Evidence-Based Medicine 2011 Levels of Evidence

Question	Step 1 (Level 1*)	Step 2 (Level 2*)	Step 3 (Level 3*)	Step 4 (Level 4*)	Step 5 (Level 5)
How common is the problem?	Local and current random sample surveys (or censuses)	Systematic review of surveys that allow matching to local circumstances**	Local non-random sample**	Case-series**	n/a
Is this diagnostic or monitoring test accurate? (Diagnosis)	Systematic review of cross sectional studies with consistently applied reference standard and blinding	Individual cross sectional studies with consistently applied reference standard and blinding	Non-consecutive studies, or studies without consistently applied reference standards**	Case-control studies, or "poor or non-independent reference standard**	Mechanism-based reasoning
What will happen if we do not add a therapy? (Prognosis)	Systematic review of inception cohort studies	Inception cohort studies	Cohort study or control arm of randomized trial*	Case-series or case-control studies, or poor quality prognostic cohort study**	n/a
Does this intervention help? (Treatment Benefits)	Systematic review of randomized trials or *n*-of-1 trials	Randomized trial or observational study with dramatic effect	Non-randomized controlled cohort/follow-up study**	Case-series, case-control studies, or historically controlled studies**	Mechanism-based reasoning
What are the COMMON harms? (Treatment Harms)	Systematic review of randomized trials, systematic review of nested case-control studies, *n*-of-1 trial with the patient you are raising the question about, or observational study with dramatic effect	Individual randomized trial or (exceptionally) observational study with dramatic effect	Non-randomized controlled cohort/follow-up study (post-marketing surveillance) provided there are sufficient numbers to rule out a common harm. (For long-term harms the duration of follow-up must be sufficient.)**	Case-series, case-control, or historically controlled studies**	Mechanism-based reasoning
What are the RARE harms? (Treatment Harms)	Systematic review of randomized trials or *n*-of-1 trial	Randomized trial or (exceptionally) observational study with dramatic effect			
Is this (early detection) test worthwhile? (Screening)	Systematic review of randomized trials	Randomized trial	Non -randomized controlled cohort/follow-up study**	Case-series, case-control, or historically controlled studies**	Mechanism-based reasoning

*** Level may be graded down on the basis of study quality, imprecision, indirectness (study PICO does not match questions PICO), because of inconsistency between studies, or because the absolute effect size is very small; Level may be graded up if there is a large or very large effect size.**

**** As always, a systematic review is generally better than an individual study.**

How to cite the Levels of Evidence Table

OCEBM Levels of Evidence Working Group*. "The Oxford 2011 Levels of Evidence".

Oxford Centre for Evidence-Based Medicine. http://www.cebm.net/index.aspx?o=5653

** OCEBM Table of Evidence Working Group = Jeremy Howick, Iain Chalmers (James Lind Library), Paul Glasziou, Trish Greenhalgh, Carl Heneghan, Alessandro Liberati, Ivan Moschetti, Bob Phillips, Hazel Thornton, Olive Goddard and Mary Hodgkinson*

EXECUTIVE SUMMARY

Climate

- A letter from physicians to the New England Journal of Medicine discusses the ramifications of incorporating individual preferences into the growing infrastructure of vaccine development. The authors note that while allowing people to make vaccine choices based on their preferences could be beneficial to promote public trust, it would be better to restrict patient choice at this point in the pandemic due to the logistical burdens, essential need to expedite allocation of the vaccine, and to prevent exacerbating the preexisting inequities in healthcare access. As such, the authors push for a policy limiting choice among vaccine preference to promote fair distribution of a critically scarce resource.

- Researchers and physicians from Weill Medical College of Cornell University in New York and the Children's Hospital of Philadelphia, detail the structural changes to the S-protein in several SARS-CoV-2 variants including strains isolated from the UK, Southern California, South Africa, and Brazil, giving each one a unique increase in amount of viral shedding and possible protection from vaccinations. The authors suggest universal practices to limiting further transmission of these potentially increasingly dangerous strains as they continue to evolve.

- In this perspective article, behavioral health experts from various academic and medical institutions throughout the US including the University of Pennsylvania and Harvard University, describe the current injustices and limitation of vaccine distribution in US incarceration facilities, citing a striking need for prevention in this patient population as they are 5.5 times more likely to contract COVID-19 and three times as likely to die from COVID-19 than the general population. Although many medical and epidemiological experts have declared the importance for vaccination for prison systems in the US – not only for the incarcerated population but also for the health of surrounding communities given an average 55% weekly turnover rate – the CDC has only prioritized staff at this time. The authors call for reformation of the timeline of vaccine roll out for all incarcerated people as well as programs to increase education about COVID-19 in this patient population.

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CLIMATE

CHOICES IN A CRISIS - INDIVIDUAL PREFERENCES AMONG SARS-COV-2 VACCINES

Kramer DB, Opel DJ, Parasidis E, Mello MM.. N Engl J Med. 2021 Mar 3. doi: 10.1056/NEJMp2102146. Online ahead of print.
Level of Evidence: 5 - Expert Opinion

BLUF

A letter from physicians to the New England Journal of Medicine discusses the ramifications of incorporating individual preferences into the growing infrastructure of vaccine development. The authors note that while allowing people to make vaccine choices based on their preferences could be beneficial to promote public trust, it would be better to restrict patient choice at this point in the pandemic due to the logistical burdens, essential need to expedite allocation of the vaccine, and to prevent exacerbating the preexisting inequities in healthcare access. As such, the authors push for a policy limiting choice among vaccine preference to promote fair distribution of a critically scarce resource.

SARS-COV-2 VACCINES AND THE GROWING THREAT OF VIRAL VARIANTS

Moore JP, Offit PA.. JAMA. 2021 Mar 2;325(9):821-822. doi: 10.1001/jama.2021.1114.
Level of Evidence: 5 - Guidelines and Recommendations

BLUF

Researchers and Physicians from Weill Medical College of Cornell University in New York and the Children's Hospital of Philadelphia affiliated with University of Pennsylvania, detail the structural changes to the S-protein in several SARS-CoV-2 variants including strains isolated from the UK, Southern California, South Africa, and Brazil, giving each one a unique increase in amount of viral shedding and possible protection from vaccinations. The authors suggest universal practices to limiting further transmission of these potentially increasingly dangerous strains as they continue to evolve.

SUMMARY

The authors outline 6 universal practices to be adhered to in the setting of introduction of several new, potentially more infectious, less treatable, and vaccine resistance variants of SARS-CoV-2:

1. Patients that present with COVID-19 after full vaccination should be immediately isolated with characterization of exact SARS-CoV-2 variant as soon as possible.
2. Countries should be actively sequencing, surveilling, and forthcoming to identify variants with global cooperation.
3. Central serum samples from fully immunized persons should be established.
4. Reduction of global spread of new variants through open communication, quarantine, and travel precautions is essential in limiting widespread transmission.
5. Design of mRNA vaccines should begin adjusting to accommodate and target key sequences present in new variants.
6. Continued adherence of wearing masks, physical distancing, and applying common sense is essential as variants continue to evolve.

BEST-PRACTICES FOR PREVENTING SKIN INJURY BENEATH PERSONAL PROTECTIVE EQUIPMENT DURING THE COVID-19 PANDEMIC: A POSITION PAPER FROM THE NATIONAL PRESSURE INJURY ADVISORY PANEL (NPIAP)

Padula WV, Cuddigan J, Ruotsi L, Black JM, Brienza D, Capasso V, Cox J, Delmore B, Holden-Mount S, Munoz N, Nie AM, Pittman J, Sonenblum S, Tescher A; National Pressure Injury Advisory Panel (NPIAP).. J Clin Nurs. 2021 Feb 3. doi: 10.1111/jocn.15682. Online ahead of print.
Level of Evidence: 5 - Guidelines and Recommendations

BLUF

An updated report by the National Pressure Injury Advisory Panel (NPIAP) on their previous systematic review published in November 2019 offers best practices and guidelines for the prevention and treatment of pressure injuries caused by personal protective equipment (PPE). The main strategies recommended by NPIAP include proper skin preparation, frequent PPE offloading, treatment of visible skin injuries, and PPE placement and personal hygiene education. The authors note the importance of adhering to these guideline as facial skin injuries can make individuals more susceptible to SARS-CoV-2.

SUMMARY

Five main strategies recommended by NPIAP

1. Skin preparation before and after wearing PPE: Cleansing of the face with pH balanced cleanser, moisturization (which should be allowed to dry before applying mask), and prepping of the skin with liquid skin sealant or protectant to reduce friction injury.

2. Frequency of PPE offloading: PPS should be offloaded frequently to allow soft tissue and skin at pressure points to reperfuse and recover.

3. Treat visible injuries caused by PPE: Open wound and visible injury should be treated with topical moisturizers, liquid skin sealants/protectants, protective non-porous dressing, and cyanoacrylate.

4. Uncertainty of dressing under PPE: The NPIAP acknowledges critical uncertainties regarding the safe use of thin prophylactic dressing under N95 masks. As such, NPIAP is unable to make a recommendation regarding this proposed strategy at this time.

5. Educating Healthcare professionals about PPE placement and Personal Hygiene: Healthcare facilities should establish clear policies for educating healthcare professionals on maintaining personal hygiene in order to protect themselves and others from COVID-19.

ABSTRACT

COVID-19 has infected millions of patients and impacted healthcare workers worldwide. Personal Protective Equipment (PPE) is a key component of protecting frontline clinicians against infection. The benefits of PPE far outweigh the risks, nonetheless, many clinicians are exhibiting skin injury caused by PPE worn incorrectly. These skin injuries, ranging from lesions to open wounds are concerning because they increase the susceptibility of viral infection and transmission to other individuals. Early into the COVID-19 pandemic (April 2020), the U.S. National Pressure Injury Advisory Panel (NPIAP) developed a series of position statements to improve wear-ability of PPE and protect healthcare professionals and their patients as safe from harm as possible under the circumstances. The NPIAP positions, which were formed by conducting a systematic review of what was known at the time, include: (1) Prepare skin before and after wearing PPE with skin sealants, barrier creams and moisturizers; (2) Frequent PPE offloading to relieve pressure and shear applied to skin; (3) treat visible skin injuries immediately caused by PPE to minimize future infection; (4) non-porous dressings may provide additional skin protection, but lack evidence; (5) health systems should take care to educate clinicians about placement and personal hygiene related to handling PPE. Throughout all of these practices, handwashing remains a top priority to handle PPE. These NPIAP positions provided early guidance to reduce the risk of skin injury caused by PPE based on available research regarding PPE injuries, a cautious application of evidence-based recommendations on prevention of device related pressure injuries in patients and the expert opinion of the NPIAP Board of Directors. Clinicians who adhere to these recommendations reduce the prospects of skin

damage and long-term effects (e.g. scarring). These simple steps to minimize the risk of skin injury and reduce the risk of coronavirus infection from PPE can help.

VACCINATION PLUS DECARCERATION - STOPPING COVID-19 IN JAILS AND PRISONS

Barsky BA, Reinhart E, Farmer P, Keshavjee S.. N Engl J Med. 2021 Mar 3. doi: 10.1056/NEJMp2100609. Online ahead of print.
Level of Evidence: 5 - Expert Opinion

BLUF

In this perspective article, behavioral health experts from various academic and medical institutions throughout the US including the University of Pennsylvania and Harvard University, describe the current injustices and limitation of vaccine distribution in US incarceration facilities, citing a striking need for prevention in this patient population as they are 5.5 times more likely to contract COVID-19 and three times as likely to die from COVID-19 than the general population. Although many medical and epidemiological experts have declared the importance for vaccination for prison systems in the US – not only for the incarcerated population but also for the health of surrounding communities given an average 55% weekly turnover rate – the CDC has only prioritized staff at this time. The authors call for reformation of the timeline of vaccine roll out for all incarcerated people as well as programs to increase education about COVID-19 in this patient population.

INFECTION CONTROL BEHAVIOR AT HOME DURING THE COVID-19 PANDEMIC: OBSERVATIONAL STUDY OF A WEB-BASED BEHAVIORAL INTERVENTION (GERM DEFENCE)

Ainsworth B, Miller S, Denison-Day J, Stuart B, Groot J, Rice C, Bostock J, Hu XY, Morton K, Towler L, Moore M, Willcox M, Chadborn T, Gold N, Amlôt R, Little P, Yardley L.. J Med Internet Res. 2021 Feb 25;23(2):e22197. doi: 10.2196/22197.
Level of Evidence: 3 - Local non-random sample

BLUF

This cross-sectional observational study of 53,125 anonymous participants by authors from University of Bath, University of Southampton, London School of Hygiene & Tropical Medicine and Public Health England between May 6-24, 2020 found current household behaviors, such as: social distancing, cleaning/disinfecting, putting shopping bags aside, self-isolation in own room, and wearing face coverings, is not adequately being carried out to prevent the spread of COVID-19 (Table 2) On the other hand, hand-washing behaviors are being performed adequately likely due to the organized effort to promote such behavior (Table 4). This study suggests needed intervention to encourage other infection control behaviors in addition to hand-washing by national and local public health to reduce the spread of COVID-19.

ABSTRACT

BACKGROUND: To control the COVID-19 pandemic, people should adopt protective behaviors at home (self-isolation, social distancing, putting shopping/packages aside, wearing face-covering, cleaning and disinfecting, handwashing). There is currently limited support to help individuals conduct these behaviors. OBJECTIVE: We aimed to report current household infection control behaviors in the UK, and examine how they might be improved. METHODS: This was a pragmatic, cross-sectional observational study of anonymous participant data from Germ Defence (https://germdefence.org/) between May 6th and May 24th 2020. Germ Defence is an open access, fully automated, website providing behavioral advice for infection control within households. 28,285 users sought advice from four website pathways based on household status (advice to protect themselves generally, to protect others if the user was showing symptoms, to protect themselves if household members were showing symptoms, and to protect a household member who is at high risk). Users reported current infection control behaviors within the home, and intentions to change these behaviors. RESULTS: Current behaviors varied across all infection control measures but were between 'sometimes' (face covering M 1.61, SD 1.19, socially distance M 2.40, SD 1.22, isolating M 2.78, SD 1.29, putting packages/shopping aside M 2.75, SD 1.55) and 'quite often' (cleaning/disinfecting M 3.17, SD 1.18), except handwashing ('very often' M 4.00, SD 1.03). Behaviors were similar regardless of the website pathway used. After using Germ Defence, users recorded intentions to improve infection control behavior across all website pathways and for all behaviors (overall average infection control score MD 0.30, CI[0.29, 0.31]). CONCLUSIONS: Self-reported infection control behaviors other than handwashing are lower than is optimal for infection prevention, although handwashing is much higher. Advice using behavior change techniques in Germ Defence led to intentions to improve these behaviors. Promoting Germ Defence within national and local public health/primary care guidance could reduce COVID-19 transmission.

Current and intended infection control behaviors.

Behaviors	Protect themselves generally (n=18,029)[a], mean (SD)	Protect others if user showing symptoms (n=169)			Protect themselves if household member showing symptoms (n=319)			Protect a household member at high risk (n=1787)		
		Mean (SD)	Mean difference (95% CI)	Cohen *d*[b]	Mean (SD)	Mean difference (95% CI)	Cohen *d*	Mean (SD)	Mean difference (95% CI)	Cohen *d*
Current behavior										
Social distancing	2.39 (1.22)	2.52 (1.39)	0.13 (–0.07 to 0.33)	0.11	2.57 (1.23)	0.17 (0.04 to 0.31)	0.15	2.51 (1.20)	0.12 (0.06 to 0.18)	0.10
Clean/disinfect	3.18 (1.18)	2.95 (1.26)	–0.24 (–0.42 to –0.06)	0.20	3.05 (1.18)	0.17 (0.04 to 0.31)	0.11	3.19 (1.17)	0.003 (–0.05 to 0.06)	0.00
Put aside shopping/packages	2.74 (1.55)	2.39 (1.48)	–0.35 (–0.60 to –0.11)	0.23	3.00 (1.49)	0.26 (0.08 to 0.44)	0.17	2.82 (1.59)	0.08 (0.004 to 0.16)	0.05
Self-isolate in own room	2.79 (1.30)	2.85 (1.43)	0.05 (–0.15 to 0.25)	0.04	2.75 (1.26)	–0.04 (–0.19 to 0.10)	0.03	2.64 (1.16)	–0.15 (–0.21 to –0.08)	0.11
Wear face covering	1.63 (1.21)	1.91 (1.36)	0.28 (0.07 to 0.49)	0.24	1.75 (1.28)	0.12 (–0.02 to 0.27)	0.10	1.42 (0.99)	–0.21 (–0.27 to –0.14)	0.17
Overall behavior score[c]	2.67 (0.91)	2.61 (1.08)	–0.05 (–0.19 to 0.08)	0.06	2.68 (0.90)	0.01 (–0.09 to 0.11)	0.01	2.59 (0.80)	–0.07 (–0.12 to –0.03)	0.08
Intended Behavior										
Social distancing	2.63 (1.28)	2.79 (1.47)	0.05 (–0.06 to 0.16)[d]	0.12	2.88 (1.30)	0.12 (0.05 to 0.20)[d]	0.19	2.84 (1.27)	0.11 (0.07 to 0.14)[d]	0.16
Clean/disinfect	3.57 (1.16)	3.18 (1.33)	–0.14 (–0.25 to –0.03)[d]	0.33	3.46 (1.18)	0.001 (–0.08 to 0.08)[d]	0.09	3.63 (1.15)	0.05 (0.01 to 0.08)[d]	0.05
Put aside shopping/packages	3.24 (1.52)	2.73 (1.59)	–0.19 (–0.34 to –0.04)[d]	0.34	3.44 (1.41)	–0.02 (–0.12 to 0.09)[d]	0.13	3.37 (1.52)	0.06 (0.01 to 0.11)[d]	0.08
Self-isolate in own room	2.94 (1.28)	3.08 (1.41)	0.10 (0.02 to 0.18)[d]	0.12	2.97 (1.23)	0.07 (0.01 to 0.13)[d]	0.03	2.87 (1.17)	0.06 (0.04 to 0.09)[d]	0.05
Wear face covering	1.95 (1.37)	2.19 (1.50)	0.03 (–0.11 to 0.17)[d]	0.18	2.15 (1.47)	0.08 (–0.01 to 0.18)[d]	0.15	1.82 (1.28)	0.08 (0.03 to 0.12)[d]	0.09
Overall behavior score	2.97 (0.96)	2.86 (1.20)	–0.03 (–0.12 to 0.05)[d]	0.11	3.01 (0.96)	0.03 (–0.03 to 0.09)[d]	0.04	2.97 (0.89)	0.06 (0.03 to 0.08)[d]	0.00

[a]Between group comparisons compare each group to the protect themselves generally group. Scale: 1 is almost never, 2 is sometimes, 3 is quite often, 4 is very often, and 5 is almost always.

[b]Reported as the standardized mean difference between each group and the comparison group.

[c]Overall behavior scores are means calculated from all behaviors in which a response was recorded.

[d]Controlling for current behavior.

Table 2. displays the level of current and intended infection control behaviors in the home. All of the mean current levels are below the mean intended levels.

Paired comparisons between current and intended handwashing behavior.

Handwashing situation	Current behavior (n=12,981), mean (SD)	Intended behavior (n=12,981), mean (SD)	Mean difference (95% CI)	Cohen *d*
Before eating snacks	3.91 (1.28)	4.45 (0.99)	0.54 (0.52-0.56)	0.54
After coming home	4.66 (0.81)	4.80 (0.62)	0.14 (0.13-0.15)	0.26
After sneezing or coughing	3.45 (1.43)	4.11 (1.23)	0.66 (0.64-0.68)	0.59
After contact with possible carrier	4.22 (1.24)	4.53 (1.00)	0.30 (0.29-0.32)	0.36
After touching something	4.13 (1.23)	4.50 (0.97)	0.36 (0.35-0.38)	0.43
Overall score[a]	4.00 (1.03)	4.34 (0.91)	0.34 (0.33-0.35)	0.50

[a]Handwashing overall score was a separate item

Table 4. displays the level of current and intended hand-washing behavior. The mean current hand-washing behavior was higher than any other infection control behavior, although still lower than the mean intended behavior.

HEMATOLOGY AND ONCOLOGY

PLATELET-ACTIVATING IMMUNE COMPLEXES IDENTIFIED IN CRITICALLY ILL COVID-19 PATIENTS SUSPECTED OF HEPARIN-INDUCED THROMBOCYTOPENIA

Nazy I, Jevtic SD, Moore JC, Huynh A, Smith JW, Kelton JG, Arnold DM.. J Thromb Haemost. 2021 Feb 27. doi: 10.1111/jth.15283. Online ahead of print.
Level of Evidence: 4 - Local non-random sample

BLUF

This cross-sectional study conducted by authors associated with Michael G. Degroote School of Medicine, McMaster Centre for Transfusion Research, and Canadian Blood Services in Ontario, Canada investigated 10 critically ill COVID-19 patients (Table 1) with clinical presentation suggestive of Heparin Induced Thrombocytopenia but no evidence of anti-PF4/heparin antibodies or heparin-dependent platelet activation. 6 of the patients were found to have antibodies targeting the receptor binding domain or the spike protein of the SARS-CoV-2 virus. In these patients, platelet activation was inhibited by FcγRIIA receptor blockade suggesting a mechanism in which COVID-19 immune-complexes mediate platelet activation and induce a pro-thrombotic state (Table 2).

FIGURES

Table 1: Critically Ill COVID-19 Coagulopathy Patient Characteristics

Sample ID (CC)	Sex	Age	Heparin Use	Platelet Nadir (10^6/L)	Thrombosis	ICU Admission	Outcome
1*	M	58	UFH	69,000	Present	Yes	Discharged
2	M	64	LMWH	52,000	-	Yes	Deceased
3	M	49	UFH	-	-	Yes	-
4	M	53	UFH	58,000	Present	Yes	Deceased
5	M	65	UFH	12,000	-	Yes	Deceased
6*	M	80	UFH	96,000	-	Yes	Deceased
7*	M	51	UFH	61,000	Present	Yes	Deceased
8*	M	70	UFH	42,000	Present	Yes	Discharged
9*	F	77	UFH	11,000	-	Yes	-
10*	F	71	UFH	72,000	Absent	No*	Deceased

N/A = not available.

UFH = unfractionated heparin

*Platelet-activating in the SRA

**Palliative goals of care

Characteristics of critically ill COVID-19 patients.

Table 2: Anti-PF4/Heparin IgG, IgA, and IgM Antibody Levels in COVID-19 Samples Detected by EIA.

Sample ID (COVID-19)	IgG, IgM, IgA (OD_{405nm})*	IgG-specific (OD_{405nm})**	Positive Predictive Value of HIT (%)
1	**0.506**	0.235	< 0.5
2	0.102	-	-
3	**0.867**	**0.495**	1.4
4	0.168	-	-
5	**3.155**	**0.583**	1.4
6	**0.456**	0.103	< 0.5
7	**1.64**	**0.931**	1.4
8	0.086	-	-
9	0.261	-	-
10	0.049	-	-

Samples that were initially positive in the IgG, IgM, IgA anti-PF4/heparin EIA (bold) were subsequently tested in the IgG-specific anti-PF4/heparin EIA. The positive predictive value of HIT is based on the IgG-specific anti-PF4/heparin EIA result as previously described.

* Positive OD_{405nm} > 0.4 in the IgG, IgA, IgM anti-PF4/heparin EIA

** Positive OD_{405nm} > 0.45 in the IgG-specific anti-PF4/heparin EIA

NEPHROLOGY

ARTERIOVENOUS FISTULAS THROMBOSIS IN HEMODIALYSIS PATIENTS WITH COVID-19

Desbuissons G, Michon A, Attias P, Burbach M, Diaconita M, Karie-Guiges S, Novelli L, Abou Rjeili M, Awad S, Besse F, Viglietti D, Beaudreuil S, Zaidan M, Lefèvre E, Hebibi H.. J Vasc Access. 2021 Feb 24:1129729821996091. doi: 10.1177/1129729821996091. Online ahead of print.
Level of Evidence: 3 - Cohort study or control arm of randomized trial

BLUF

A retrospective, observational study conducted of 255 maintained hemodialysis patients with COVID-19 between March 11-April 30, 2020 by Cardiologists in the Ile France region found AV fistula thrombosis was a complication in 17 of the 255 patients suggesting a higher mortality and increased severity secondary to AV Fistula Thrombosis in COVID-19 patients on hemodialysis. When comparing surviving and non-surviving patients the use of maximum O2 Level (L/min), fistula de-clotting procedures and the measurement of laboratory values including: increased white blood cells, decreased platelets and increased CRP had statistically significant p values (Table 1).

FIGURES

Table 1. Clinical and biological characteristics of patients.

Characteristics		All patients (17)	Non-surviving (8)	Surviving (9)	p value
Male/Female		10M/7F	5M/3F	5M/4F	0.78
Age (years)		69 (IQR 59–79)	70 (IQR 61–79)	68 (IQR 57–79)	0.81
Cause of ESRD	Diabetes/Hypertension	11 (64.7%)	5 (62.5%)	6 (66.6%)	0.52
	Genetic diseases	1 (5.8%)	1 (12.5%)	0 (0%)	0.36
	Glomerulonephritis	2 (11.7%)	1 (12.5%)	1 (11.1%)	0.48
	Other	3 (17%)	1 (12.5%)	2 (22.2%)	0.22
Comorbidities	Hypertension	88%	87.50%	89.00%	0.93
	Diabetes	58.00%	75%	44%	0.23
	Thromboembolism history	31.20%	25%	37.50%	0.62
	Pulmonary disease	17.60%	25%	11.00%	0.48
	Ischemic heart disease	52.90%	75%	33.00%	0.09
	Cancer	11.70%	12.50%	11.00%	0.93
	Body Mass Index	28 (IQR 23.1–32.8)	25 (IQR 21.7–28.3)	32.5 (IQR 26.1–37.8)	0.2
Dialysis parameters	Vintage (years)	4 (IQR 0.7–7.25)	3 (IQR 0.3–5.7)	4.5 (IQR 1.3–8.6)	0.36
	HDF modality	33%	29%	38%	0.74
COVID-19 symptoms	Fever	81%	87%	75%	0.55
	Cough	68%	75%	62%	0.62
	Asthenia	86%	100%	71%	0.12
	Diarrhea	43%	62%	25%	0.15
	Confusion	12%	12%	12%	1
	Anosmia	13%	12%	14%	93%
	Oxygen saturation (%)	90 (IQR 83–96)	88.5 (IQR 84–95)	91 (IQR 86 99)	0.4
	Lung injury by CT	40%	40%	40%	1
Treatment	Maximum 02 level (L/min)	9.3 (IQR 5–18)	13 (IQR 12–17)	5.5 (IQR 0–10)	0.006
	Oro tracheal intubation	20%	28%	12%	0.47
	Outpatient	6%	0%	11%	0.36
	Hospitalization	53%	50%	56%	0.50
	Intensive care unit	41%	50%	33%	0.48
Laboratory data	Hemoglobin (g/dL)	10.1 (IQR 8.95–11.25)	9.95 (IQR 9–10.9)	10.4 (IQR 8.9–11.8)	0.35
	White blood cells ($\times 10^9$/L)	6.99 (IQR 0–14.5)	16 (IQR 7–24)	5.6 (IQR 1.7–9.5)	0.057
	Lymphocytes ($\times 10^6$/L)	580 (IQR 213–940)	570 (IQR 414–725)	680 (IQR 196–1163)	0.41
	Platelets ($\times 10^9$/L)	142 (IQR78–206)	80 (IQR 22–137)	203 (IQR 159–246)	0.031
	CRP (mg/L)	151 (IQR 42–258)	236 (IQR137–335)	106 (IQR 9–242)	0.058
	Ferritin (µg/L)	615 (IQR 0–2187)	600 (IQR 0–2606)	630 (IQR 0–1165)	0.45
	Fibrinogen (g/L)	5.9 (IQR 4.4–7.4)	6.3 (IQR 5.15–7.4)	4.35 (IQR 3.0–5.65)	0.13
	D-Dimer (µg/L)	8280 (IQR 3386–13173)	3400 (IQR 0–8026)	8940 (IQR 3660–14220)	0.39
Fistula	Age (years)	4 (IQR 1.7–6.2)	3.5 (IQR 1.14–5.86)	4.5 (IQR 2.3–6.7)	0.96
	Proximal/Distal	41/59%	38/62%	44/56%	NA
	Flow (mL/min)	960 (IQR 757–1164)	950 (IQR 820–1080)	1025 (IQR 764–1286)	0.41
	Stenosis	44%	37%	50%	0.64
	Delay of AVF thrombosis from first symptom of COVID-19	7 (IQR 0–16)	7 (IQR 0.3–13.7)	8.5 (IQR (0–20.4)	0.72
	Thrombosis as a first symptom of COVID-19	18.70%	12.50%	25%	0.55
	Declotting procedures	64%	25%	100%	0.0002
	Thrombectomy success	91%	100%	89%	0.57
	Early new thrombosis	36%	0.00%	44%	0.28
	Use of catheter	44%	28%	55%	0.36

Table 1 displays the clinical and biological characteristics of the patients.

'NAB' THE SELF-REACTIVE ACTIVITY IN THE COVID-19 COMBAT

Narasimhan M, Mahimainathan L, Muthukumar A.. Signal Transduct Target Ther. 2021 Mar 2;6(1):105. doi: 10.1038/s41392-021-00518-2.
Level of Evidence: 5 - Review / Literature Review

BLUF

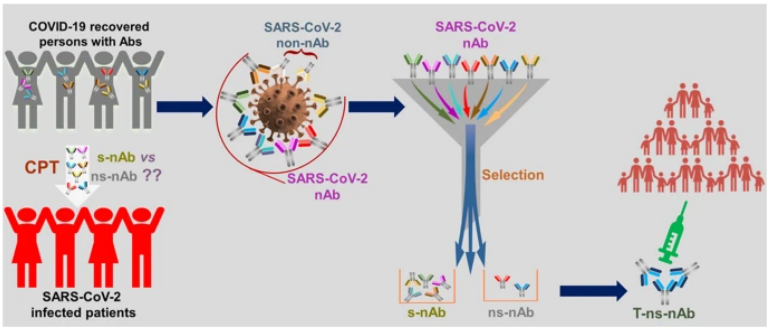
A review article conducted by pathologists at the University of Texas Southwestern Medical Center discusses recent findings published by Kreye et al. in Cell, stating the need for further research into non-self-reactive neutralizing antibodies (ns-Nab) (Fig. 1) for use in COVID-19 therapy. The authors assert that new research into the ns-nAb, CV07-209, shows promising SARS-CoV-2 neutralizing capabilities while also being non-self-reactive (see summary). The implication being that this therapy needs to be further studied as it could be a useful adjuvant or newfound first-line therapy to combat COVID-19 infection in the current or future pandemic environment.

SUMMARY

- The key to many COVID-19 treatments being researched are neutralizing antibodies (nAbs) which help prevent viral attachment or penetration into the host cell, thus negating its infective capacity (Figure 1)
- A recent study done by Kreye et al. showed promising results in identifying nAbs from blood of COVID-19 survivors, and finding that a specific nAb, CV07-209, had strong neutralizing and non-self-reactive neutralizing activity.
- Furthermore, the CV07-209 nAb can also help prevent clinical signs of lung damage seen in COVID-19 infection.
- Also important is the need to test vaccine and convalescent plasma for unintended self-reactivity as this may cause self-damage which would counteract any potential benefit from the treatment.
- The Kreye et al. research brings forth other questions including are these nAbs suitable for COVID-19 mitigation, how can a unified testing strategy be constructed, how do these nAbs alter the patient's immune system, how or should post-treatment patients with nAbs be followed-up with as in other clinical trials?

FIGURES

Fig. 1



Non-self-reacting antibodies and SARS-CoV-2 infection. Do the passive antibody supply strategy-based CPT require exclusion of autoreactive and non-nAbs, and retention of Abs with non-self-reactive-neutralizing activity to improve efficacy? (left). Non-self-reactive-neutralizing antibody proposed to be a potent therapy for inhibiting the SARS-CoV-2 activity (right). CPT convalescent plasma therapy, nAb neutralizing antibody, s-nAb self-reactive-neutralizing antibody, ns-nAb non-self-reactive-neutralizing antibody, T-ns-nAb therapeutic non-self-reactive antibody

Fig. 1 Non-self-reacting antibodies and SARS-CoV-2 infection. Do the passive antibody supply strategy-based CPT require exclusion of autoreactive and non-nAbs, and retention of Abs with non-self-reactive-neutralizing activity to improve efficacy? (left). Non-self-reactive-neutralizing antibody proposed to be a potent therapy for inhibiting the SARS-CoV-2 activity (right). CPT convalescent plasma therapy, nAb neutralizing antibody, s-nAb self-reactive-neutralizing antibody, ns-nAb non-self-reactive-neutralizing antibody, T-ns-nAb therapeutic non-self-reactive antibody

MAINTAINING SAFETY WITH SARS-COV-2 VACCINES

Castells MC, Phillips EJ.. N Engl J Med. 2021 Feb 18;384(7):643-649. doi: 10.1056/NEJMra2035343. Epub 2020 Dec 30.
Level of Evidence: 5 - Expert Opinion

BLUF

A review article authored by two physicians from Brigham and Women's Hospital in Boston emphasizes the importance of maintaining safety protocol during ongoing development and administration of SARS-CoV-2 vaccines. They state that because the incidence of anaphylaxis associated with the Pfizer SARS-CoV-2 mRNA vaccine appears to be approximately 10 times as high as the incidence reported with all previous vaccines, the CDC has recommended that only persons with a known allergy to any component of the vaccine be excluded from vaccination. They also write that because it is difficult to have a comprehensive analysis on side effects associated with the various vaccines, it is important to have careful vaccine-safety surveillance over time, paired with elucidation of mechanisms of adverse events across different SARS-CoV-2 vaccine platforms to inform a strategic and systematic approach to vaccine safety (Figure 1).

FIGURES

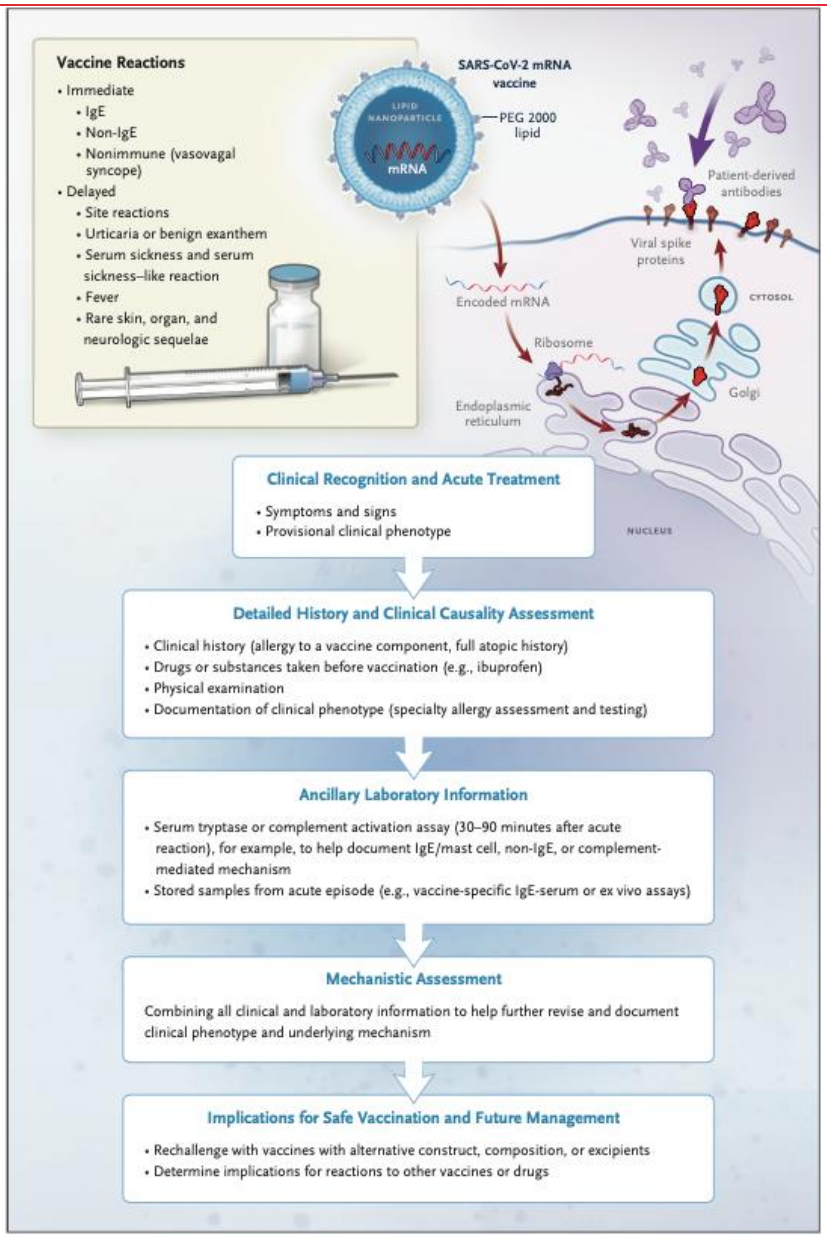


Figure 1. Assessing Reactions to Vaccines.

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