May 5th, 2020
Daily COVID-19 Literature Surveillance Summary

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NOW LIVE!

COVID-19 LST

COVID-19 Daily Literature Surveillance

COVID19LST

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

Coming soon:

the swab

The Swab

Jasmine Rah

The untold stories of the coronavirus (COVID-19) pandemic.

May 5th, 2020
Executive Summary

Climate

- There is concern for worse COVID-19 pandemic outcomes in Central Africa due to poor healthcare system infrastructure,regulation of drugs and dependence on imported medical supplies in addition to current wars.
- The overrepresentation of black Americans in COVID-19 cases and deaths is thought to be multifactorial. Some factors include higher rates of underlying conditions, lack of access to health care services, limited telehealth access, and poor enforcement of social distancing policies.

Epidemiology

- Data from the UK National Health Service found a 61% decrease in deep vein thrombosis (DVT) ultrasound assessments and a 50% decrease in referral for carotid duplex scans leading to concern that fear of contracting COVID-19 is causing a decrease in preventative care.
- Epidemiologists are urging their colleagues to make the codes used in their models publicly available in an effort to build public trust, prevent misunderstanding, and reduce misinformation.

Understanding the Pathology

- Vascular and perfusion abnormalities found in dual-energy CT imaging of COVID-19 patients indicate that vascular pulmonary shunting may be a prominent cause of hypoxemia.
- SARS-CoV-2 infection of host cells is likely via the cleaved S1 and S2 subunits that bind the angiotensin converting enzyme 2.

Transmission & Prevention

- The Seattle Flu Study is a multi-institutional, community-wide surveillance project initially intended to track data from influenza that began testing nasal swabs for COVID-19 in any patient with respiratory symptoms. From January 1-March 9, they found that 1.1% of participants tested positive for COVID-19 in 30% of patients seeking clinical care.
- Because of the speculation and a couple of ongoing randomized controlled trials regarding the BCG vaccine's potential utility in COVID-19 infection, infectious disease specialists urge against its use until definitive evidence exists due to its short supply and potential for COVID-19 exacerbation.

Management

- Along with protocols on medically managing COVID-19 patients, there is a suggestion to include offering comfort and reassurances to patients as part of the checklists.
- Children were seen to generally have smaller, ground-glass nodules on CT in comparison to larger consolidations or "white-out" seen in adults.
- Key laboratory tests recommended for COVID-19 patients are:
    - CBC with differential
    - Acute phase inflammatory biomarkers
    - Kidney, liver, and cardiac injury biomarkers
    - Indicators of improvement: CRP/procalcitonin
    - Prognostic biomarkers like D-dimer values
    - Sequential organ failure assessment.

- Some experts recommend not using a Clinical Frailty Score of 5 as the clinical cut off for deciding ICU care benefits because they found significant mortality differences between scores of 5, 6, and 7 in pre-COVID patients. When ICUs are not overrun, they suggest more thoughtful practice for geriatric patients during COVID-19 management.

Adjusting Practice during COVID-19

- Guidelines and recommendations from today include:
  - Bronchoscopy use
  - Laparoscopic surgery
  - Resource allocation in head and neck cancer service.
- Asthma expert Sebastian Johnson believes that asthma will likely emerge as a significant risk factor for severity of COVID-19 infection and recommends azithromycin prophylaxis in patients with asthma who have not met optimal asthma control with standard therapies.
- Italian vascular surgeons have seen an uptick in amputations due to peripheral artery disease leading to concerns that opportunities for intervention in these patients due to the pandemic.

R&D: Diagnosis & Treatments

- In a retrospective analysis of over 3,000 COVID-19 patients, researchers found that RNA-based diagnostic testing methods lacked negative predictive value, though they were useful indicators for clinical course, pattern, and prognosis.
- A study found no statistically significant difference between self- versus operator-administered olfactory and gustatory assessments, suggesting that self-assessments could be useful in early detection of COVID-19.
- Convalescent plasma transfusion was found to be safe, clinically effective, and beneficial in reducing mortality in five studies of 27 COVID-19 patients.

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Acknowledgements

Levels 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.**

Credit: 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

We have added Level 6 to denote papers that do not cite any sources or provide any supporting evidence.

Climate

Working from home in the time of covid-19: how to best preserve occupational health?

Bouziri, Hanifa; Smith, David R M; Descatha, Alexis; Dab, William; Jean, Kevin
Occup Environ Med.
2020 Apr 30; PMID: 32354748
Level of Evidence: 5 - Expert Opinion
Type of Article: Letter

Summary: The authors of this study examine how working from home is affecting occupational health. They suggest "allowing teleconsultations as well as systems for listening to employee complaints with occupational practitioners to provide employees with optimised working conditions despite the pandemic circumstances." They also suggest being mindful that many employees are adapting to new home environments, so messages should avoid being anxiety-provoking.

COVID-19：Should sexual practices be discouraged during the pandemic?

Yin, ZhiQiang
J Am Acad Dermatol.
2020 Apr 30; PMID: 32360858.
Level of Evidence: 5 - Expert opinion
Type of Article: Letter to the Editor

Summary: The authors explain that there have been no traces of COVID-19 in genital tracts, semen, or testes in COVID-19 patients, and thus it is unlikely to be transmitted via "traditional forms of sexual behavior." They admit that more research is needed in this topic, but argue that it is "radical and uncessary" *[sic]* to call on physicians to "dissuade people from having sex during the pandemic," although use of protective measures, such as condoms, are suitable suggestions to make.

Covid-19: pandemic healthcare centres should have already existed.

Sharma Neel; Anderson, Diana
BMJ.
2020 Apr 30; PMID: 32354760
Level of Evidence: Level 6 - No Data Cited
Type of Article: Letter

BLUF: "Pandemic ready centres need to be considered essential for future generations."
Summary: The authors discuss how delayed action to COVID-19 has been a serious disadvantage to the US and UK. They argue that these nations had weeks of advantage knowing the spread of this disease, yet refused to prepare in advance. As a result, hospitals and healthcare systems suffered trying to "catch up." They argue that field hospitals like New York City's Javits Center should remain as permanent features "ready for action" in case future pandemics arise.

Global

Initial resolution of the COVID-19 pandemic in China-can the virus return?

Ge J
Herz
2020 Apr 30; PMID: 32356040
Level of Evidence: 5- Expert Opinion

Type of Article: Letter

Summary: This letter considers the possibility of a second wave of COVID-19 in China. As the number of infections has been limited in most regions of China, apart from Wuhan, there is a theoretical risk of resurgence due to lack of immunity. The author concludes that acquired immunity by a vaccination or past infections is needed to end the pandemic.

Disparities

The COVID-19 Pandemic Illuminates Persistent and Emerging Disparities among Rural Black Populations.

Zahnd WE
J Rural Health
2020 May 3; PMID: 32362015
Level of Evidence: 5-Expert opinion
Type of Article: Letter

Summary: This letter highlights the overrepresentation of black Americans in COVID-19 cases and deaths, especially in the rural South. The author argues that this area has a "perfect storm of more lax 'stay at home' and social distancing policies, higher rates of underlying conditions, and lack of access to health care services," due to a lack of medicaid expansion, limited broadband access for telehealth, and recent hospital closures.

COVID-19's final frontier: The central Africa region.

Ditekemena J, Doumbia S, Ebrahim SH.
Travel Med Infect Dis.
2020 Apr 30, PMID: 32360410
Level of Evidence: 5 - Expert Opinion
Article Type: Commentary

Summary: The authors write about their thoughts on potential problems in Central Africa that can worsen the slowly rising COVID-19 cases. The main concerns involve their current outbreaks of other infectious diseases, a weak healthcare system with limited access to communities, the disbelief in western medicine, poor regulation of drugs and dependence on imported medical supplies, current wars, and the lack of education of the population.

Epidemiology

Current Smoking is Not Associated with COVID-19.

Rossato M, Russo L, Mazzocut S, Di Vincenzo A, Fioretto P, et al.
Eur Respir J.
2020 Apr 29; PMID: 32350106
Level of Evidence: 4 - Case series
Type of Article: Research

Summary: The authors of this study evaluated 132 SARS-CoV-2 related pneumonia patients for their smoking status and found that none of their patients were current smokers. 112 patients had never smoked and 20 patients were former smokers. Epidemiological data from other studies has also shown "a very low prevalence of smokers, with no significant association between current smoking and severe disease in COVID-19 patients" Thus, these data seem to question the role of coexisting active smoking as a risk factor for COVID-19 pneumonia.

Modeling

Feasibility of controlling COVID-19.

Xiong N, Lin Z.
Lancet Glob Health.
2020 Apr 30, PMID: 32359416
Level of Evidence: 5 - Expert opinion
Type of Article: Correspondence

Summary: This correspondence is written in response to Hellewell et al.'s "Feasibility of controlling COVID-19 outbreaks by isolation of cases and contacts." The authors raise several questions regarding the clinical value of Hellewell et al.'s modeling, specifically about their definitions of outbreak control and disease onset, and how their mathematical modeling can explain the peak of new cases in Wuhan 29 days after quarantine measures were enacted.

The accuracy of "Preliminary estimation of the novel coronavirus disease (COVID-19) cases in Iran: A modelling analysis based on overseas cases and air travel data".

Ahmadi A, Kheiril S, Mohammadian-Hafshejani A, Raeisi H, Mosavi M, Sharifi H.
Int J Infect Dis
2020 Apr 30, PMID: 32360944
Level of Evidence: 5 - Expert opinion
Type of Article: Letter

BLUF: Epidemiologists critically assessing the Zhuang et al. study titled "Preliminary estimation of the novel coronavirus disease (COVID-19) cases in Iran: A modelling analysis based on overseas cases and air travel data" had methodological concerns with the study that led to an overestimate of the number of infections in Iran. The authors also suggest that the rapid reporting of COVID-19 cases, strength of Iran's health system, importance of discovering high-risk hotspots, and role of chance in transmission rates were not factored into the model.

Summary: A group of epidemiologists engaged in Iran's COVID-19 epidemic control have concerns regarding the recent study written by Zhuang et al. and suggest critically analyzing models to accurately estimate the number of infections in Iran. The concerns include:

- Flight passengers are not a random sampled for the whole country
- It is unclear where the passengers were infected

- The reported mean incubation period of 5.2 days and the basic reproductive number of 2.2 in this study is inconsistent with other data
- The estimated number of infected people depend on assumptions not defined by the authors
- Suitable references for the method were not used
- Reported cases were only defined for the United Arab Emirates, Lebanon, and Oman thus leading to bias

Call for transparency of COVID-19 models.

Barton CM, Alberti M, Ames D, Atkinson JA, Bales J, Burke E, Chen M, Diallo SY, Earn DJD, Fath B, Feng Z, Gibbons C, Hammond R, Heffernan J, Houser H, Hovmand PS, Kopainsky B, Mabry PL, Mair C, Meier P, Niles R, Nosek B, Osgood N, Pierce S, Polhill JG, Prosser L, Robinson E, Rosenzweig C, Sankaran S, Stange K, Tucker G.
Science.
2020 May 1; PMID: 32355024
Level of Evidence: 5 - Opinion
Type of Article: Letter

Summary: This letter is a call to researchers using COVID-19 models to publish their codes used to generate these models. The authors argue that "transparency engenders public trust and is the best defense against misunderstanding, misuse, and deliberate misinformation about models and their results."

Symptoms and Clinical Presentation

Adults

Diffuse cutaneous manifestation in a new mother with COVID-19 (SARS-Cov-2).

Paolino Giovanni; Canti, Valentina; Raffaele Mercuri, Santo; Rovere Querini, Patrizia; Candiani, Massimo; Pasi, Federica
Int J Dermatol.
2020 May 2; PMID: 32358979
Level of Evidence: 4 - Case study
Type of Article: Letter

BLUF: The authors review unusual COVID-19 symptoms seen in a new 37-year-old mother "characterized by the simultaneous presence of erythematous, maculopapular lesions and urticaria-like skin lesions" (See figures 1 & 2).

Summarizing Excerpt: "Our case shows a cutaneous manifestation in a new mother with COVID-19 characterized by the simultaneous presence of erythematous, maculopapular lesions and urticaria-like skin lesions, further highlighting the variety of the clinical features which are associated with this new disease, still little known. Again, our case highlights that newborns and children in 97% of cases do not develop severe respiratory symptoms, without showing clear clinical manifestations, although they can be an significant viral reservoir. Women with COVID-19 can breastfeed. Moreover, our case also highlights how telemedicine plays a very important role in supporting patients confined at home during the coronavirus pandemic emergency."

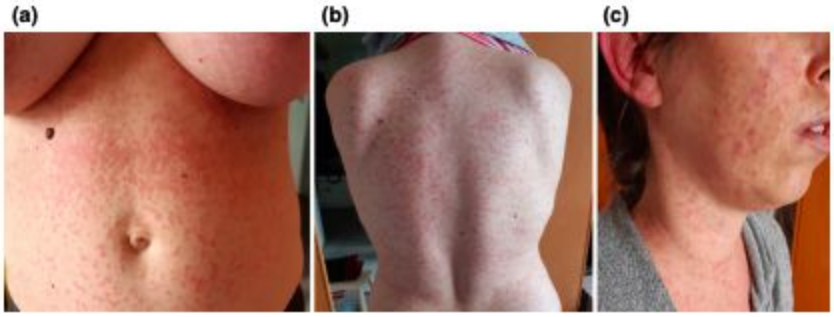


Figure 1 (a) Erythematous maculopapular lesions on the trunk in the absence of itching. (b) Erythematous maculopapular lesions on the trunk, with more erythema in the back. (c) Involvement of the head-neck region. The lesions showed a craniocaudal development.

Figure 2 Nummular erythematous lesions with a peripheral slight white halo, assuming urticaria-like features, specifically resembling an adrenergic urticaria.

A COVID-19 case in Libya acquired in Saudi Arabia.

Elhadi M, Momen AA, Ali Senussi Abdulhadi OM.
Travel Med Infect Dis.
2020 Apr 30; PMID: 32360409
Level of Evidence: 4 - Case Report
Type of Article: Research

Summary: The case report presents the first case of COVID-19 in Libya: a 73-year-old Libyan male admitted for progressive dyspnea, tachypnea, and fever. Notable diagnostics include: bilateral ground glass opacities on lung CT, lymphopenia, elevated acute phase reactants, and positive RT-PCR on the third day. Patient recovered after 6 days; treatment included isolation and antibiotic therapy (cefixime, azithromycin).

Skin signs resembling vascular acrosyndromes during the COVID-19 outbreak in Italy.

Tosti G, Barisani A, Queirolo P, Pennacchioli E, Villa L, Lodeserto AM, Vaccari S.
Clin Exp Dermatol.
2020 May 2; PMID: 32358996
Level of Evidence: 4 - Case Series

Type of Article: Research

BLUF: Multiple case reports of acrosyndromes, in the forms of erythematous plaques and chilblain-like lesions, have been reported in COVID-19 patients in Italy. The authors suggest that these skin findings alone are not an indication to screen for COVID-19 at this time.

Abstract:
We have read with great interest Dr Estébanez article regarding the case of a 28-year-old woman affected by COVID-19, presenting confluent erythematous-yellowish papules at both heels. After three days, the lesions persisted and became hardened erythematous plaques.

Figure 1: A 26-year-old, healthy male presenting hardened, erythematous plaques at both heels (a). A 16-year-old girl with erythematous plaques located at both heels (b). An 18-year-old girl with erythematous plaques involving mainly the extensor surface of the toes (c); both heels showed erythematous confluent papules (d). A 48-year-old male developed hardened erythematous plaques involving mainly the extensor surface of the toes, bilaterally (e).

A novel COVID-19 and its effects on cardiovascular disease.

Paramasivam A, Priyadharsini JV, Raghunandhakumar S, Elumalai P.
Hypertens Res.
2020 Apr 30, PMID: 32355222
Level of Evidence: 5 - Expert Opinion
Type of Article: Correspondence

Summarizing Excerpt: "Although COVID-19 is predominantly a respiratory illness, a large number of patients with COVID-19 present with preexisting [cardiovascular disease (CVD)] or develop new-onset cardiac dysfunction during the course of the illness. Therefore, understanding the CVD caused by SARS-CoV-2 and the underlying mechanisms is of the greatest importance, and during treatment for COVID-19, careful attention should be given to cardiovascular protection."

Table 1. Cardiovascular complications in COVID-19 patients.

Clinical manifestation	Incidence
Cardiovascular abnormality (increased cardiac troponin I)	8–12%
Heart failure	52% in those who died and 12% in those who recovered
Acute cardiac injury	59% in those who died and 1% in those who recovered
Arrhythmia	16.7%
Acute cardiac injury	7.2%

Pediatrics

Children with Covid-19 in Pediatric Emergency Departments in Italy.

Parri N, Lenge M, Buonsenso D; Coronavirus Infection in Pediatric Emergency Departments (CONFIDENCE) Research Group.
N Engl J Med
2020 May 1, PMID: 32356945
Level of Evidence: 3 - Cohort study
Type of Article: Correspondence, Research

BLUF: The authors of the Coronavirus Infection in Pediatric Emergency Departments (CONFIDENCE) study involving a cohort of 100 Italian children with RT-PCR confirmed COVID-19 compared their results with those of other published studies. Children composed 1% of the total number of COVID-19 patients with 11% hospitalized and no deaths reported in the study.

Summary: Important results from the CONFIDENCE study include:

- Median age of children was 3.3 years
- Exposure to SARS-CoV-2 from an unknown source or a source outside the child's family accounted for 55% of cases
- 12% of children appeared ill on admission in the emergency department
- Cough occurred in 44% of patients, no feeding or difficulty feeding in 23%, cough or shortness of breath in 52% of all febrile patients, oxygen saturation level below 95% in 4%, and 6 out of 9 patients requiring respiratory support had coexisting conditions.

Compared to other studies, this study's patients had a lower incidence of transmission possibly due to the late lockdown, fewer moderate-to-severe disease cases due to rare use of CT imaging, and fewer cases of diagnosed pneumonia.

Understanding the Pathology

Hypoxaemia related to COVID-19: vascular and perfusion abnormalities on dual-energy CT.

Lang M, Som A, Mendoza DP, Flores EJ, Reid N, Carey D, Li MD, Witkin A, Rodriguez-Lopez JM, Shepard JO, Little BP
Lancet Infect Dis
2020 Apr 30; PMID: 32359410
Level of Evidence: 4 - Case Series
Type of Article: Research

BLUF: In this case series, the authors present results from dual-energy CT imaging that show profound vascular and perfusion abnormalities in twelve patients with COVID-19, leading to VQ mismatch. These novel findings suggest pulmonary vascular shunting may be a more central cause of hypoxemia in patients with COVID-19 than previously recognized.

Summary: The authors present the first published images of dual-energy CT showing profound vascular and perfusion abnormalities in twelve patients with COVID-19. In addition to the typical CT features of COVID-19 (peripheral ground-glass opacities with or without consolidation), the authors observed the following: preferentially increased perfusion of the lungs proximal to areas of lung opacity, decreased areas of peripheral perfusion corresponding to peripheral lung opacities, and a halo of increased perfusion surrounding peripheral areas of consolidation. They concluded that these perfusion abnormalities, combined with the observed pulmonary vascular dilation, are suggestive of intrapulmonary shunting toward areas where gas exchange is impaired, resulting in a worsening ventilation–perfusion mismatch and clinical hypoxia. Some of these findings can be seen in pulmonary infarction and bacterial infection, despite neither applying to COVID-19 or these patients. These findings are novel to COVID-19 and may indicate that pulmonary vascular shunting may play a more central role in the hypoxemia in these patients.

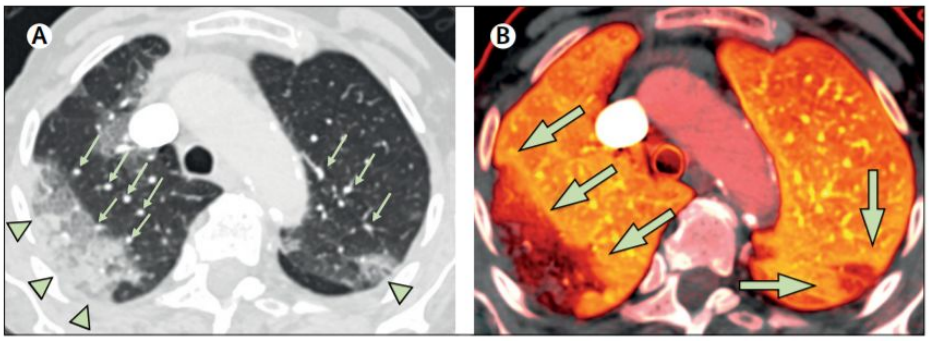


***Figure*: Dual-energy CT in a patient with COVID-19 pneumonia without evidence of pulmonary emboli**
Patient 1, an 87-year-old woman with a history of fever and cough for 5 days, was found on the floor of her nursing home. On admission to hospital, the patient required a non-rebreather mask with a flow rate of 15 L/min to maintain an oxygen saturation of 85%; intubation was not pursued as the patient's status was comfort measures only. (A) There is a large area of peripheral ground-glass opacity and consolidation within the right upper lobe and smaller ground-glass opacity in the posterior left upper lobe (green arrowheads), which are accompanied by dilated subsegmental vessels proximal to, and within, the opacities (green arrows). (B) The accompanying image of pulmonary blood volume shows corresponding wedge-shaped areas of decreased perfusion within the upper lobes, with a peripheral halo of higher perfusion (green arrows). COVID-19=coronavirus disease 2019.

Is the Collapse of the Respiratory Center in the Brain Responsible for Respiratory Breakdown in COVID-19 Patients?

Gandhi S, Srivastava AK, Ray U, Tripathi PP.Gandhi S, et al.
ACS Chem Neurosci.
2020 Apr 29; PMID: 32348111
Level of Evidence: 5 – Mechanism-Based Reasoning
Article Type: Letter to the Editor

BLUF: The authors suggest respiratory failure secondary to brain damage may be an important part of COVID-19 pathophysiology. They note that transgenic mice infected with MERS sometimes developed brain damage affecting their respiratory centers, and they point to anosmia/ageusia experienced by some COVID-19 patients as further evidence that the virus can move from the nasal cavity towards the brainstem. A hypothetical pathway is offered for consideration (see figure 1).

Abstract:
Following the identification of severe acute respiratory syndrome coronavirus (SARS-CoV) in 2002 and Middle East respiratory syndrome coronavirus (MERS-CoV) in 2012, we are now again facing a global highly pathogenic novel coronavirus (SARS-CoV-2) epidemic. Although the lungs are one of the most critically affected organs, several other organs, including the brain may also get infected. Here, we have highlighted that SARS-CoV-2 might infect the central nervous system (CNS) through the olfactory bulb. From the olfactory bulb, SARS-CoV-2 may target the deeper parts of the brain including the thalamus and brainstem by trans-synaptic transfer described for many other viral diseases. Following this, the virus might infect the respiratory center of brain *[sic]*, which could be accountable for the respiratory breakdown of COVID-19 patients. Therefore, it is important to screen the COVID-19 patients for neurological symptoms as well as possibility *[sic]* of the collapse of the respiratory center in the brainstem should be investigated in depth.

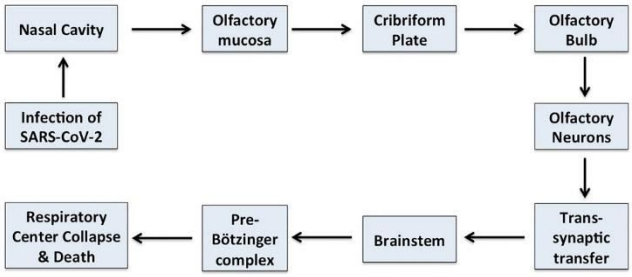


Figure 1. Schematic representation showing how SARS-CoV-2 may infect the respiratory center of the brain. SARS-CoV-2 may enter the brain through the olfactory mucosa present in the upper nasal cavity. From there, through olfactory axons, it makes an opening in the cribriform plate and projects to the olfactory epithelium and olfactory bulb. SARS-CoV-2 further migrates to deeper parts of the brain such as the thalamus and brainstem by trans-synaptic migration and targets the pre-Bötzinger complex, thus possibly causing the collapse of the respiratory center of the brain.

SARS-CoV-2 Virus and Liver Expression of Host Receptors: Putative Mechanisms of Liver Involvement in COVID-19

Pirola CJ, Sookoian S.
Liver Int.
2020 Apr 30; PMID: 32352224
Level of Evidence: 5 – Mechanism-Based Reasoning
Type of Article: Letter

BLUF: Studies have indicated that those with chronic liver disease are more susceptible to COVID-19 and present with oxygen desaturation and hypoxemia due to severe pneumonia or cytokine storm.

SARS-CoV-2 has been shown to interact with the ACE2, TMPRSS2, and FURIN receptors, all of which can be found in liver tissue. This may be the mechanism behind how SARS-CoV-2 causes liver injury.

Abstract:
Zhang et al. showed that COVID-19 affected patients' present liver biochemistry abnormalities, including elevation of aminotransferases, gamma-glutamyl transferase, and alkaline phosphatase. Hence, several possible clinical scenarios in the setting of liver diseases have been postulated. First, patients with chronic liver disease may be more vulnerable to the severe clinical consequences of COVID-19, including oxygen desaturation and hypoxemia due to severe pneumonia or the cytokine storm. Second, liver biochemistry abnormalities are the consequence of drug toxicity.

No evidence for an increased liver uptake of SARS-CoV-2 in metabolic associated fatty liver disease.

Biquard L, Valla D, Rautou PE
J Hepato
2020 Apr 30; PMID: 32360995
Level of Evidence: 5 - Mechanism-Based Reasoning
Type of Article: Research
Summary: The authors investigated the influence of metabolic associated fatty liver disease (MAFLD) on liver gene expression of four proteins (ACE2, CTSL, TMPRSS2, and PIKFYVE) implicated in the hepatic uptake of SARS-CoV-2. Using transcriptomics data from 58 patients with liver diseases, there was no increase in liver gene expression of the four proteins. Thus, the authors concluded that patients with MAFLD do not have altered liver expression of entry proteins critical to SARS-CoV-2.

In vitro

An 81 Nucleotide Deletion in SARS-CoV-2 ORF7a Identified From Sentinel Surveillance in Arizona (Jan-Mar 2020).

Holland LA, Kaelin EA, Maqsood R, Estifanos B, Wu LI, Varsani A, Halden RU, Hogue BG, Scotch M, Lim ES.
J Virol
2020 May 1; PMID: 32357959
Level of Evidence: 4 - Case Series
Type of Article: Letter to the Editor
Summary: This study performed next-generation sequencing on specimen RNA from nasopharyngeal swabs of 5 patients to understand the evolutionary relationships and characterize the SARS-CoV-2 genomes. It was found that the SARS-CoV-2 genome encodes multiple open reading frames in the 3' region like SARS-CoV. Also, the SARS-CoV-2 AZ-ASU2923 genome has an 81 nucleotide deletion in the ORF7a gene resulting in a 27 amino-acid in-frame deletion. These deletions may potentially reduce virus fitness.

Transmission & Prevention

Developments in Transmission & Prevention

The First, Holistic Immunological Model of COVID-19: Implications for Prevention, Diagnosis, and Public Health Measures

Matricardi PM, Dal Negro RW, Nisini R.
Pediatr Allergy Immunol
2020 May 02; PMID: 32359201
Level of Evidence: 5 – Literature Review
Type of Article: Review

Summary: This comprehensive report summarizes key study findings on COVID-19 and other upper respiratory tract infections to generate a hypothesis for susceptibility based on amount-of-particle exposure and age-related decline in innate and adaptive immune function. Further, they discuss consequences of disease in persons based on exposure and age, proposing a model for replication under different immune scenarios. They postulate that mannose-binding lectin plays a central role in triggering COVID-19 microthrombosis. The authors conclude with recommendations on limiting exposure by identifying “high virus spreaders,” “individuals with low natural antibodies levels,” and preventing “fast penetration of the virus in the lungs,” the lattermost piece of advice applying to exposed individuals engaging in high-tidal volume exercise.

Abstract:
The natural history of COVID-19 caused by SARS-CoV-2 is extremely variable, ranging from asymptomatic or mild infection, mainly in children, to multi-organ failure, eventually fatal, mainly in the eldest. We propose here the first model, explaining how the outcome of first *[sic]*, crucial 10-15 days after infection, hangs on the balance between the cumulative dose of viral exposure and the efficacy of the local innate immune response (natural IgA and IgM antibodies, Mannose Binding Lectin). If SARS-CoV-2 runs the blockade of this innate immunity and spreads from the upper airways to the alveoli in the early phases of the infections, it can replicate with no local resistance, causing pneumonia and releasing high amounts of antigens. The delayed and strong adaptive immune response (high affinity IgM and IgG antibodies) that follows, causes severe inflammation and triggers mediator cascades (complement, coagulation, and cytokine storm) leading to complications often requiring intensive therapy and being, in some patients, fatal. Low-moderate physical activity can still be recommended. However, extreme physical activity and hyperventilation during the incubation days and early stages of COVID-19, facilitates early direct penetration of high numbers of virus particles in the lower airways and the alveoli, without impacting on the airway's mucosae covered by neutralizing antibodies. This allows the virus bypassing the efficient immune barrier of the upper airways mucosa in already infected, young and otherwise healthy athletes. In conclusion, whether the virus or the adaptative *[sic]* immune response reach the lungs first, is a crucial factor deciding the fate of the patient. This "quantitative and time-sequence dependent" model has several implications for prevention, diagnosis, and therapy of COVID-19 at all ages.

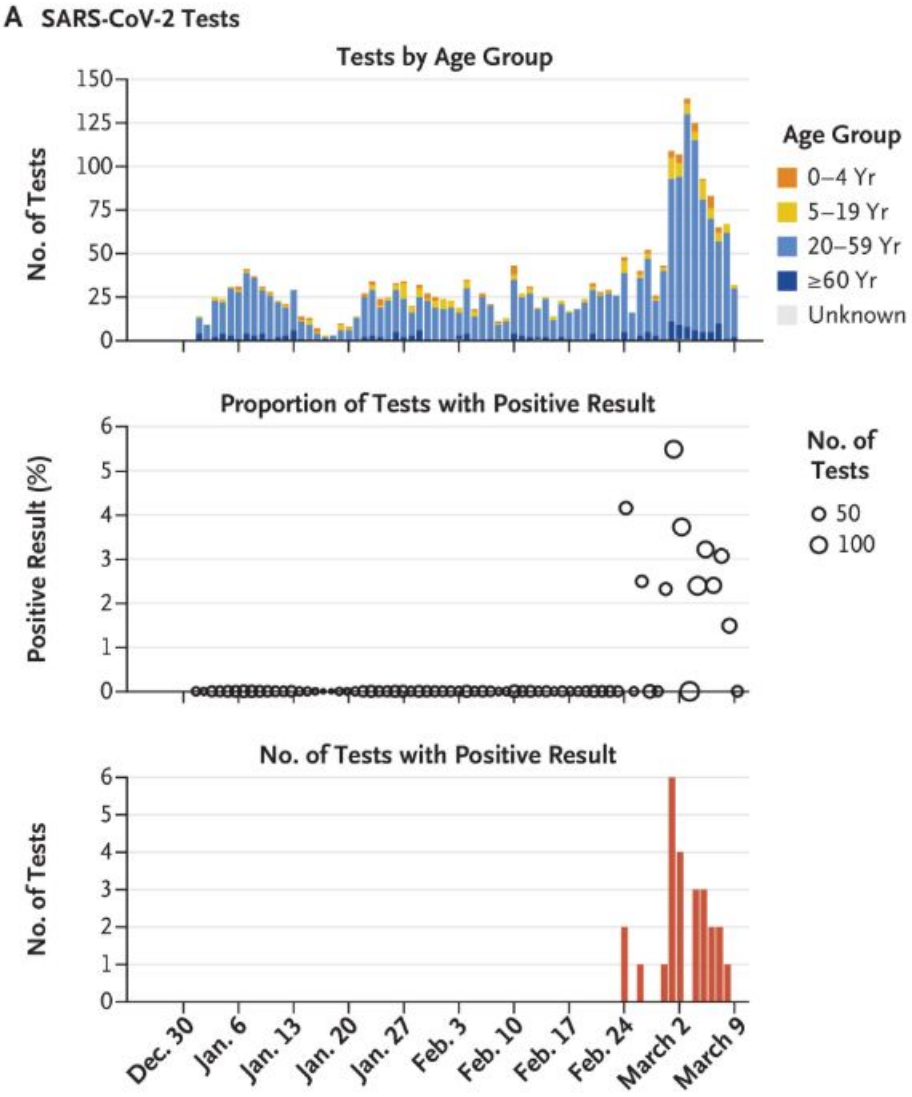
Prevention in the Community

Early Detection of Covid-19 through a Citywide Pandemic Surveillance Platform.

Chu HY, Englund JA, Starita LM, Famulare M, Brandstetter E, Nickerson DA, Rieder MJ, Adler A, Lacombe K, Kim AE, Graham C, Logue J, Wolf CR, Heimonen J, McCulloch DJ, Han PD, Sibley TR, Lee J, Ilcisin M, Fay K, Burstein R, Martin B, Lockwood CM, Thompson M, Lutz B, Jackson M, Hughes JP, Boeckh M, Shendure J, Bedford T; Seattle Flu Study Investigators.

N Engl J Med
2020 May 1, PMID: 32356944
Level of Evidence: 3 - Cohort study
Type of Article: Correspondence, Research

Summary: The Seattle Flu Study is a multi-institutional, community-wide pandemic surveillance platform originally designed for tracking influenza in symptomatic patients that began testing participants' nasal swabs for COVID-19 after the first case in Washington was identified. From January 1-March 9, 2353 participants were tested, of whom 25 (1.1%) tested positive for SARS-CoV-2. 2 of those were children and 7 seeking clinical care (figure A). This study was one of the first in the US to demonstrate community transmission and was critical in accelerated public health efforts in the city of Seattle. The authors state that "community-based sampling for respiratory illnesses as essential infrastructure for early detection and mitigation of future pandemics."



Panel A shows SARS-CoV-2 tests over time, further stratified according to age group; detection of positive SARS-CoV-2 test results over time and as a percentage of the total number of tests run; and Covid-19–positive case counts over time.

Corona and Clergy: The missing link for an effective social distancing in Pakistan. Time for some unpopular decisions.

Mubarak N
Int J Infect Dis

2020 Apr 30; PMID: 32360938
Level of Evidence: 5 - Expert opinion
Type of Article: Letter
Summary: Citing evidence of virus spread during religious gatherings around the world, the author recommends increased restrictions on religious gatherings in Pakistan, which currently excludes congregations in mosques from social distancing rules. Examples are given of other countries' modifications to Muslim traditions such as the closing of Mecca and calls to pray at home in Kuwait.

Living Arrangements of Older Adults and COVID risk: It is not just Nursing Homes

Coe, NB; Van Houtven, CH
J Am Geriatr Soc
2020 May 2; PMID: 32359073
Level of Evidence: 5 - Expert Opinion
Type of Article: Letter
Summary: Authors report upon the consideration of non-nursing homes (or, residential care communities) for care of senior citizens in America. Considerations they report upon include personal protective equipment (PPE), difficulty of social distancing due to the needs these seniors have (walking, assistance with daily activities of living, dementia), and the high number of seniors with comorbidities that make them high risk for COVID-19 fatality. The authors call for expansion of the tactics and focus on nursing homes for COVID-19 to include residential care communities.

Hand disinfection in the combat against Covid-19.

Goldust M, Abdelmaksoud A, Navarini AA
J Eur Acad Dermatol Venereol
2020 May 3; PMID: 32362045
Level of Evidence: 5- Expert opinion
Type of Article: Letter
Summary: A brief overview of hand and surface decontamination strategies against COVID-19. For hands the authors suggest alcohol based hand rubs (WHO formulations I and II), povidone iodine, or 70% ethanol in addition to soap and water. For surface decontamination they suggest whole-room ultraviolet light-C (UVC), 0.5% sodium hypochlorite or long lasting quaternary ammonium chloride.

Considering BCG vaccination to reduce the impact of COVID-19.

Curtis N, Sparrow A, Ghebreyesus TA, Netea MG
Lancet
2020 Apr 30; PMID: 32359402
Level of Evidence: 5 - Expert Opinion
Type of Article: Correspondence
Summary: Previous studies have shown that BCG vaccine's immunomodulatory properties can protect against respiratory infections, such as tuberculosis, through the enhancement of the innate immune response. Currently, randomized controlled trials are being done to assess whether BCG reduces the incidence and severity of COVID-19 in the Netherlands and Australia. Until the trials are complete, the authors urge use of the BCG vaccine only in clinical trials for four reasons 1) the BCG vaccine is already in short supply, 2) it is unknown if the BCG vaccine will be effective, 3) if it is not effective, it could contribute to a false sense of security, and 4) to ensure the induced immune response does not exacerbate COVID-19 in severely ill patients. They conclude that if the BCG does

prove to provide protection from COVID-19 it will be an important tool in this pandemic, as well as those in the future.

Using social and behavioural science to support COVID-19 pandemic response

Bavel JJV, Baicker K, Boggio PS, Capraro V, Cichocka A, Cikara M, Crockett MJ, Crum AJ, Douglas KM, Druckman JN, Drury J, Dube O, Ellemers N, Finkel EJ, Fowler JH, Gelfand M, Han S, Haslam SA, Jetten J, Kitayama S, Mobbs D, Napper LE, Packer DJ, Pennycook G, Peters E, Petty RE, Rand DG, Reicher SD, Schnall S, Shariff A, Skitka LJ, Smith SS, Sunstein CR, Tabri N, Tucker JA, Linden SV, Lange PV, Weeden KA, Wohl MJA, Zaki J, Zion SR, Willer R
Nat Hum Behav.
2020 Apr 30; PMID: 32355299
Level of Evidence: 5 - Expert Opinion
Type of Article: Review

BLUF: This article performs a selective literature review on social and behavioral research topics that may influence how the public responds to the pandemic. The authors "highlight some insights for public health experts, policy makers, and community leaders.

- A shared sense of identity or purpose can be encouraged by addressing the public in collective terms and by urging 'us' to act for the common good
- Identifying sources (for example, religious or community leaders) that are credible to different audiences to share pub-lic health messages can be effective.
- Leaders and the media might try to promote cooperative behaviour by emphasizing that cooperating is the right thing to do and that other people are already cooperating
- Norms of prosocial behaviour are more effective when coupled with the expectation of social approval and modelled by in-group members who are central in social networks
- Leaders and members of the media should highlight biparti-san support for COVID-related measures, when they exist, as such endorsements in other contexts have reduced polariza-tion and led to less-biased reasoning
- There is a need for more targeted public health informa-tion within marginalized communities and for partnerships between public health authorities and trusted organizations that are internal to these communities
- Messages that (i) emphasize benefits to the recipient, (ii) focus on protecting others, (iii) align with the recipient's moral val-ues, (iv) appeal to social consensus or scientific norms and/or (v) highlight the prospect of social group approval tend to be persuasive
- Given the importance of slowing infections, it may be helpful to make people aware that they benefit from others' access to preventative measures
- Preparing people for misinformation and ensuring they have accurate information and counterarguments against false information before they encounter conspiracy theories, fake news, or other forms of misinformation, can help inoculate them against false information
- Use of the term 'social distancing' might imply that one needs to cut off meaningful interactions. A preferable term is 'physical distancing', because it allows for the fact that social connection is possible even when people are physically separated"

Abstract:
The COVID-19 pandemic represents a massive global health crisis. Because the crisis requires large-scale behaviour change and places significant psychological burdens on individuals, insights from the social and behavioural sciences can be used to help align human behaviour with the recommendations of epidemiologists and public health experts. Here we discuss evidence from a selection of research topics relevant to pandemics, including work on navigating threats, social and

cultural influences on behaviour, science communication, moral decision-making, leadership, and stress and coping. In each section, we note the nature and quality of prior research, including uncertainty and unsettled issues. We identify several insights for effective response to the COVID-19 pandemic and highlight important gaps researchers should move quickly to fill in the coming weeks and months.

Prevention in the Hospital

Occupational Skin Conditions on the Frontline: A Survey Among 484 Chinese Healthcare Professionals Caring for Covid-19 Patients

Pei S, Xue Y, Zhao S, Alexander N, Mohamad G, Chen X, Yin M.
Pediatr Allergy Immunol
2020 May 03; PMID: 32362062
Level of Evidence: 3 – Local Non-Random Sample
Type of Article: Letter

BLUF: The authors surveyed health workers (n = 484) in China to investigate how the type of PPE and duration of wear impact the skin, with the rationale that skin lesions predispose healthcare workers to infection. They conclude that higher levels of protection (levels 2 and 3), increased wear time, and higher working frequency all correlated with more facial skin lesions ($p = 0.0016$, <0.0010, and 0.0016, respectively). The authors recommend "implementation of effective measures to ensure the integrity of [the] skin barrier of the frontline medical staff."

Abstract:
The 2019-nCoV outbreak occurred in Wuhan, China in December 2019(1). This unprecedented virus has caused global pandemic and over 2,300,000 cases worldwide in total number(2), which has been bringing tremendous pressure and challenges to medical institutions and clinical staff around the world. 2019-nCoV can be transmitted by droplets primarily, while it has been reported that surface contact transmission exists as well(3). Keeping the integrity of skin barrier is a critical method to prevent the spread of 2019-nCoV, since skin is the first line of defense of human *[sic]* body(4). It is of prime importance to ensure and maintain the skin *[sic]* clean, sterilized and protected of clinical health care staff during the fight against the epidemic. Self-protection of the medical staff is essential, however, utilizing protective equipment such as goggles, masks and protective clothing continuously impairs skin integrity and the skin damage caused by the respective protective measures must be taken seriously.

COVID-19 pandemic: University of Naples Federico II Dermatology's model of dermatology reorganization.

Patrì A, Gallo L, Annunziata MC, Megna M, Fabbrocini G.
Int J Dermatol.
2020 May 2; PMID: 32358978
Level of Evidence: 5 - Expert opinion
Type of Article: Letter

BLUF: This letter to the editor highlights the efforts for COVID-19 prevention by the Section of Dermatology at the Department of Clinical Medicine and Surgery, University of Naples Federico II, Italy. Preventive measures include selective triaging, canceling all elective outpatient visits, reduction of healthcare personnel exposed, personal protective equipment use, and wide-spread healthcare personnel testing.

Summarizing Excerpt: "Since the end of February, the following measures have been put in place:

1. Allowed access to the Dermatological Clinic only after having passed a “triage station” located at the entrance, managed by a nurse and a dermatologist. No patient with fever or respiratory symptoms can enter.
2. All elective outpatient visits have been cancelled. Patients were provided an email address to contact physicians, who have been encouraged to practice telemedicine in a smart working modality. Only three types of services are permitted: urgent visits, surgical procedures for malignant tumors, dermatological consultations that cannot be deferred in other wards.
3. Drastic reduction of health personnel. A rotation of all medical and nursing staff allows reduction of the number of people exposed to the contagion risk.
4. Personal protective equipment (PPE) has been provided to the staff. All the healthcare personnel have been educated on the strategies and behaviors to be implemented in order to prevent and control 2019-nCoV infection.
5. All the healthcare staff have undergone an oropharyngeal swab for SARS-CoV-2 detection even in the absence of respiratory symptoms or established contacts with COVID-19 patients.
6. An anti-COVID-19 research group made up of professors, researchers, PhD students, and residents has been created. The research group is drafting projects for anti-COVID pharmaceutical experiments as well as therapeutic management protocols for dermatological patients, especially if in treatment with biological or immunosuppressive drugs. All such research activities are conducted and coordinated online.”

Use of transparent curtains on bedside of COVID-19 patients.

Gupta S, Gupta S, Gujrathi AV
Clin Exp Dermatol
2020 May 2; PMID: 32358974
Level of Evidence: 5- Expert opinion
Type of Article: Correspondence
Summary: The authors suggest the use of a transparent curtain to isolate hospitalized patients with COVID-19. They argue that this could help contain the spread of COVID-19, while not impeding patient monitoring and some physical exam maneuvers that can be done through the curtain (i.e. auscultation).

Management

An alternative COVID-19 checklist.

Thomas M.Thomas M.
Br J Gen Pract.
2020 Apr 30; PMID: 32354810
Level of Evidence: 5 - Expert Opinion
Type of Article: Letter

Summary: This letter served to advocate for patients by proposing that every checklist which has to do with managing COVID-19 patients, including donning and doffing personal protective equipment, should also include an offering of comfort and reassurance to patients.

Acute care

Emergency Medicine

Re-purposing a face tent as a disposable aerosol evacuation system to reduce contamination in COVID-19 patients: a simulated demonstration.

Tsui BCH.Tsui BCH.
Can J Anaesth.
2020 Apr 30; PMID: 32356164
Level of Evidence: 5 - Expert Opinion
Type of Article: Letter

Summary: This letter offered insight on equipment that can reduce COVID-19 transmission, especially for health care providers who are given the task of intubation. They proposed a system (see image below), which was disposable as decontamination presents issues, to immediately evacuate all aerosols released into the environment during an aerosol generating medical procedure.

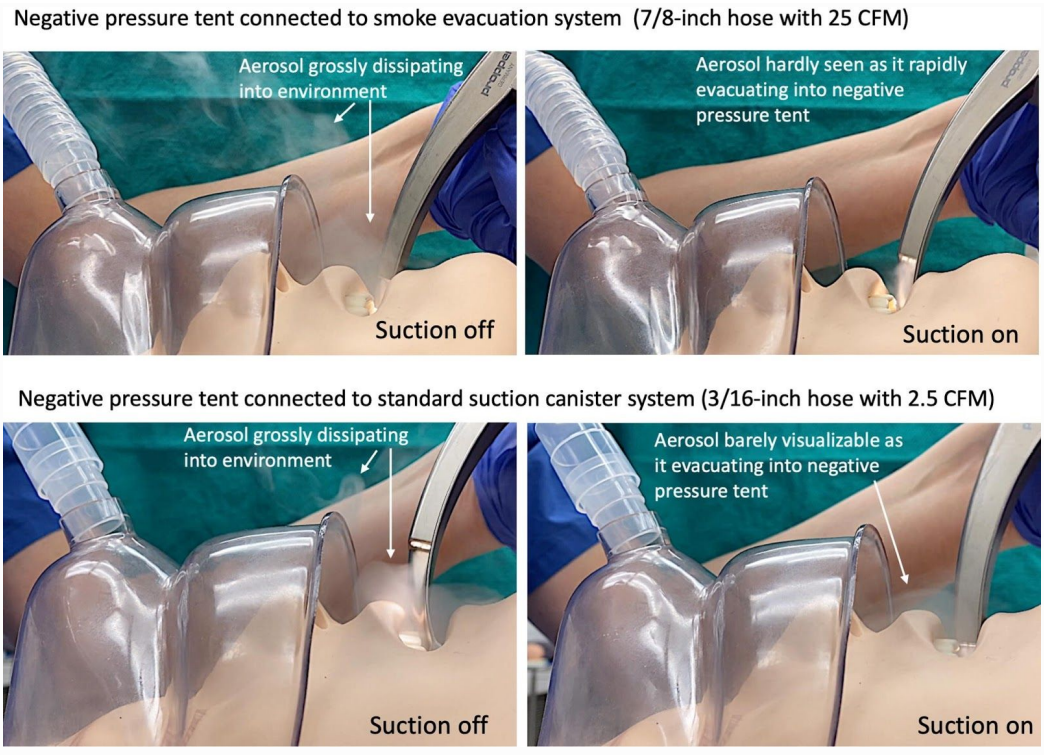


Figure 6. Negative pressure tent illustration using inverted face tent (Salters Face Tent, Salter Labs, Arvin, CA, USA).

Critical Care

Hypercoagulation and Antithrombotic Treatment in Coronavirus 2019: A New Challenge.

Violi F, Pastori D, Cangemi R, Pignatelli P, Loffredo L.
Thromb Haemost
2020 Apr 29. PMID: 32349133
Level of Evidence: 1 - Systematic review
Type of Article: Systematic Review

BLUF: In a review of nine studies comparing clotting and fibrinolysis values of nonsevere and severe (as defined by acute respiratory distress syndrome, need of ICU treatment, nonsurvivors, or severe pneumonia), elevated D-dimer levels were associated with poor survival; PT, aPTT, LFTs, and platelet count data were less conclusive. The authors give a speculated mechanism of hypercoagulation, involving prothrombin fragment F1 & 2, platelet TxB2, or Nox2, but acknowledge that current data are too limited to suggest broad anticoagulation in patients with COVID-19 pneumonia.

Summary: This was a systematic review to examine changes in clotting activation in patients with COVID-19 and the biologic plausibility of the thrombotic risk in SARS-CoV-2 and the potential use of an antithrombotic treatment. The authors included clinical studies in patients with COVID-19 infection assessed the following laboratory parameters: d-dimer, platelet counts, prothrombin time, activated partial thromboplastin time, alanine aminotransferase, and aspartate aminotransferase. The studies included in this systematic review had to show COVID-19 infection with severe disease and nonsevere disease. Severe disease was defined as presence of acute respiratory distress syndrome, need of ICU treatment, nonsurvivor patients, or presence of severe pneumonia.
D-Dimer: D-dimer values were reported in all but one study, and 6 out of 8 studies defined increased values. Of those, between 14-46% of patients were found to have elevated D-dimer levels. Among patients with severe disease, all studies showed increased D-dimer values.
Platelet Count: A trend toward a reduction of platelet count in patients with severe disease was reported in all studies, and there was a significant platelet reduction in nonsurvivors compared with survivors.
Prothrombin Time: PT was reported to be prolonged in patients with severe disease, and prolongation of PT was more evident in nonsurvivors.
aPTT: The rate of aPTT prolongation was unclear with only one study showing a modest increase. Prolongation of aPTT seemed to occur in nonsurvivors, but data need to be confirmed.
LFTs: Four studies reported ALT increase in 12-31% of patients, and AST increase in 18-62% of patients. Together, these data show that in COVID-19 liver failure is almost modest and, thereby, does not seem to have an impact on clotting changes.
Discussion: The authors also speculate the biological mechanism of hypercoagulation, involving prothrombin fragment F1 & 2, platelet TxB2, or Nox2. Preliminary data are currently not enough to recommend broad anticoagulant use in patients with COVID-19 pneumonia, but more trials are warranted.

Emerging key laboratory tests for patients with COVID-19.

Kavsak PA, de Wit K, Worster A, et al.
Clin Biochem.
2020 Apr 30; PMID: 32360478
Level of Evidence: 5 - Expert Opinion
Type of Article: Letter

BLUF: Listed in this letter are six key laboratory tests to follow in patients with COVID-19 for monitoring disease severity and progression:

1. CBC with differential: monitor for leukocytosis, thrombocytopenia, and lymphocytopenia.
2. Acute phase response and inflammatory biomarkers: CRP, ferritin, and possibly IL-6 may be elevated.
3. Kidney, liver, and cardiac injury biomarkers: creatinine, ALT, and troponin may be elevated.
4. Indicators of Improvement: decreases in CRP or procalcitonin (if bacterial infection).
5. Prognostic biomarkers: D-dimer is useful for monitoring coagulation, and low to normal high-sensitivity cardiac troponin levels may indicate low-risk cardiovascular outcomes.
6. Sequential organ failure assessment (SOFA) and the confusion, urea, respiratory rate, blood pressure, and age ≥ 65 years (CURB-65) score: may indicate patients at low- and high-risk for death.

Table 1. Emerging key laboratory tests for patients with COVID-19

Laboratory Test	Role in COVID-19
Lymphocyte count	• At least 75% of patients have a count <1.5 x 10^9/L.[1], [2], [3] • Patients with persistently low counts during hospitalization have a poor prognosis.[1]
C-reactive protein (CRP)	• CRP median concentrations differ between non-survivors (n=113) versus survivors (n=161) (113 mg/L vs. 26 mg/L) as does ferritin (1418 ug/L vs. 481 mg/L) and IL-6 (72 ng/L vs. 13 ng/L).[2] • Before convalescent plasma transfusion the median CRP concentration in 5 COVID-19 patients was 163 mg/L and at 12-days post-transfusion with no virus detected the median CRP concentration was 6 mg/L.[4] Of note, CRP concentrations <10 mg/L typically indicate no appreciable acute phase response.
Alanine Aminotransferase (ALT)	• Using an overall cutoff of >40 U/L approximately 30% of COVID-19 patients had liver injury at admission.[1], [3] • The rate of liver injury could be higher in females as the upper limit of normal is typically lower in females as compared to males.
D-dimer	• At admission 50% of patients who survived had concentrations <0.6 ug/mL while the non-survivors at least 75% had concentrations >1.3 ug/mL.[1], [2]
High-sensitivity cardiac troponin	• At admission, 50% of the survivors had a high-sensitivity cardiac troponin I concentration ≤ 3 ng/L (a low normal level).[1], [2]
Clinical Scores	• Creatinine, total bilirubin, pO_2 and platelet count are used for the SOFA (sequential organ failure assessment) score; while urea is used for the CURB-65 (confusion, urea, respiratory rate, blood pressure and age ≥65 years) score.[1] Lactate levels are also used to identify septic shock.

Chest computed tomography in children with COVID-19.

Mungmunpuntipantip R, Wiwanitkit V.
Pediatr Radiol
2020 Apr 30; PMID: 32350545
Level of Evidence: 4 - Case Series
Article Type: Letter to the Editor

Summary: The authors respond to *Li et al. 2020*, specifically on the observation that more modest lung abnormalities on CT were noted in a small pediatric cohort compared to adults. The authors

share their own observations as of March 14th in Thailand where they observed only mild symptoms and no significant findings on chest CT on radiography for 3 pediatric patients.

Neurology

An Italian programme for COVID-19 infection in multiple sclerosis

Sormani, MP
Lancet Neurol
2020 Apr 30; PMID: 32359409
Level of Evidence: 3 - Cohort study
Type of Article: Letter, Research

Summary: Researchers followed 232 multiple sclerosis (MS) patients from MS centers in Italy who had tested positive for COVID-19. The neurology community initially had concerns that MS patients were at higher risk of COVID-19-related mortality due to the nature of their drug treatment and disease. However, based on preliminary data, 96% of MS patients were categorized as having a mild COVID-19 infection and 2-3% of patients were categorized as having severe or critical infections. Of the six critical patients, one recovered and five died. Despite these encouraging findings, they recommend further monitoring and study before any conclusions about susceptibility can be made.

Validation of a self-administered olfactory and gustatory test for the remotely evaluation of COVID-19 patients in home quarantine.

Vaira LA, Salzano G, Petrocelli M, Deiana G, Salzano FA, De Riu G.
Head Neck.
2020 May 1; PMID: 32357379
Level of Evidence: 3- Non-randomized controlled cohort
Type of Article: Research

BLUF: Gustatory and olfactory agnosia are typical early findings in patients with COVID-19, therefore early detection of these symptoms could be useful in diagnosis. The study compared self- versus operator-administered olfactory and gustatory assessments in thirty-three home quarantined adults. They found no statistically significant difference between the two groups, suggesting that self-assessment of chemosensitive symptoms could be a valid test that may contribute to early detection of COVID-19.

Abstract:
Background: Chemosensitive disorders are very frequent in the early stages of COVID-19 and in paucisymptomatic cases. These patients are typically placed in home quarantine. This study has the aim of validating a new olfactory and gustatory objective evaluation test in these patients.
Methods: Thirty-three home-quarantined COVID-19 patients have undergone a self-administered chemosensitive test the day before the control swab. On this occasion, the patients underwent operator-administered already validated tests. The results were finally compared.
Results: The differences between the results of the two tests were not significant for both the olfaction (P = 0.201) and the taste (P = 0.180).
Conclusion: The olfactory and gustatory evaluation by self-administered test can be considered a valid tool, fundamental for obtaining objective qualitative and quantitative data on the extent of chemosensitive disorders in home-quarantined COVID-19 patients.

Medical subspecialties

Dermatology

Biologic therapy for psoriasis during the COVID-19 outbreak: the choice is to weigh risks and benefits.

Conforti, Claudio; Giuffrida, Roberta; Dianzani, Caterina; Di Meo, Nicola; Zalaudek, Iris.
Dermatol Ther.
2020 May 1; PMID: 32358864
Level of Evidence: 5 - Expert Opinion
Type of Article: Letter to the Editor

BLUF: Biological or immunosuppressive therapies should be discontinued in COVID-19 patients, and the risks and benefits of immunosuppressive therapy should be carefully weighed at this time.

Summary: In early March 2020, when international guidelines on the management of therapies for psoriasis patients were not yet available, dermatologists worldwide felt it prudent to discontinue immunosuppressive treatments in COVID-19 patients or those living in high-risk regions. The American Academy of Dermatologists have since suggested to "(1) discontinue use of biological treatment in COVID-19-positive patients, (2) carefully consider whether to start biological treatments in patients with various comorbidities (ie, defer biological therapy), and (3) consider alternative treatments in high-risk patients." The International League of Dermatological Societies has followed in support of these statements, adding that there is no scientific evidence to support discontinuing therapy in patients without COVID-19. The International Psoriasis Council now recommends, in COVID-19 patients, to discontinue or postpone use of immunosuppressant medications. In conclusion, biological or immunosuppressive therapies should be discontinued in COVID-19-positive patients, and the risks and benefits of immunosuppressive therapy should be carefully weighed in this moment of time.

Endocrinology

COVID-19 and the Endocrine System: Exploring the Unexplored.

Pal R, Banerjee M.
J Endocrinol Invest
2020 May 2; PMID: 32361826
Level of Evidence: 5 - Expert opinion
Type of Article: Comment

Summary: Based on studies pertaining to the SARS outbreaks and recent reports, this study explores possible effects of COVID-19 on the endocrine system. The most notable conclusions were:

1. COVID-19 could also lead to worsening of insulin resistance in patients with pre-existing type 2 diabetes mellitus (DM).
2. Men with COVID-19 showed lower serum testosterone and higher luteinizing hormone (LH) compared to age-matched healthy men.
3. Considering the high frequency of neurological symptoms, it may be assumed that SARS-CoV-2 affects the hypothalamus and pituitary directly or via immune-mediated hypophysitis.

Ophthalmology

Implications of COVID-19 for uveitis patients: perspectives from Hong Kong.

Hung JCH, Li KKW.Hung JCH, et al.
Eye (Lond)
2020 Apr 29; PMID: 32350447
Level of Evidence: 5 – Expert Opinion
Article Type: Letter to the Editor

Summary: Risks and benefits of uveitis therapy in patients with COVID-19, especially that of systemic and local steroids are discussed. Authors conclude that for patients with COVID-19, ", it may be prudent to taper off their systemic therapy where possible, until they have recovered from COVID-19", and that a "multidisciplinary approach including rheumatologists, ophthalmologists, and internists may be necessary" to determine the wisest course of treatment.

Pediatrics

Computed tomography of the lungs in novel corona virus (COVID-19) infection.

Lai W, Xie C, Pan H, Fan M, Liu J.Lai W
Pediatr Radiol
2020 May 2; PMID: 32358678
Level of Evidence: 4 - Case Series
Type of Article: Letter

Summary: This case series focused on computed tomography (CT) findings from two pediatric COVID-19 cases aged 12 and 16 years old in Wuhan City, China. Both cases were discharged from the hospital after antiviral therapy and symptomatic treatment. The authors note the differences in COVID-19 CT findings between children and adults, namely the smaller, ground-glass nodules in children vs larger consolidations or "white-out" in adults.

Geriatrics

COVID-19: Use of the Clinical Frailty Scale for critical care decisions

Chong, E; Chan, M; Tan, HN; Lim, WS
J Am Geriatr Soc
2020 May 2; PMID: 32359076
Level of Evidence: 5 - Expert Opinion
Type of Article: Letter

Summary: The authors in this letter comment upon the recent clinical critical care recommendations from the National Institute for Clinical Excellence (NICE) in regards to using the Clinical Frailty Score (CSF) cutoff of 5 for whether or not Intensive Care Unit (ICU) care would be of any benefit in the care of COVID-19 positive patients. The authors cite their own study which showed significant mortality differences between CFS 5 and CFS 6 and 7 for patients hospitalized in the ICU (pre-COVID-19, Table 1), which leads them to recommend not using a frailty assessment (ie a cutoff of CFS 5) as an automatic disqualification ICU care but instead as a way to manage care in a meaningful context that takes into consideration benefits of care and potential lack of resources.

CFS Groups	Mortality			Institutionalization and/or Mortality		
	Initial Hospitalization (n=210)	6 months (n=210)	12 months (n=210)	Initial Hospitalization (n=210)	6 months (n=206)†	12 months (n=206)†
Univariate Analysis						
CFS 1-3	0/4 (0.0%)	0/4 (0.0%)	0/4 (0.0%)	0/4 (0.0%)	0/4 (0.0%)	0/4 (0.0%)
CFS 4	0/5 (0.0%)	0/5 (0.0%)	0/5 (0.0%)	0/5 (0.0%)	0/5 (0.0%)	1/5 (20.0%)
CFS 5	0/60 (0.0%)	3/60 (5.0%)	5/60 (8.3%)	0/60 (0.0%)	4/57 (7.0%)	6/57 (10.5%)
CFS 6	5/106 (4.7%)	23/106 (21.7%)	31/106 (29.2%)	10/106 (9.4%)	29/105 (27.6%)	39/105 (37.1%)
CFS 7-8	3/35 (8.6%)	16/35 (45.7%)	21/35 (60.0%)	3/35 (8.6%)	18/35 (51.4%)	22/35 (62.9%)
P value*	0.27	<.001	<.001	0.15	<.001	<.001
CFS Groups	**Mortality**			**Institutionalization and/or Mortality**		
	Initial Hospitalization β	**6 months (n=201)** ‡	**12 months (n=201)** ‡	**Initial Hospitalization** β	**6 months (n=197)** £	**12 months (n=197)** £
Multivariate Analysis €		**Adjusted OR (95% CI)**	**Adjusted OR (95% CI)**		**Adjusted OR (95% CI)**	**Adjusted OR (95% CI)**
CFS 5		reference§	reference§		reference§	reference§
CFS 6		5.11 (1.44 – 18.06)μ	4.52 (1.61 – 12.73)μ		5.00 (1.64 – 15.23)μ	5.11 (1.97 – 13.27)μ
CFS 7-8		15.69 (3.98 – 61.87)¥	17.99 (5.36 – 60.34)¥		14.11 (4.07 – 48.94)¥	15.87 (5.04 – 49.95)¥

Table 1. Comparison of short- and long-term adverse health outcomes between Clinical Frailty Scale groups.

Adjusting Practice During COVID-19

Medical subspecialties

Estimated effect of COVID-19 lockdown on melanoma thickness and prognosis: a rate of growth model.

Tejera-Vaquerizo A, Nagore E.
J Eur Acad Dermatol Venereol
2020 May 2; PMID: 32362041
Level of Evidence: 5 - Mechanism-based reasoning
Article Type: Letter to the Editor

BLUF: The authors created a model of melanoma rate of growth (ROG) to estimate the impact of delayed diagnostics and procedures on the prognosis of patients with melanoma (Figure 1). Based on the model, upstaging rates (progression to the next tumor stage) for each diagnostic delay group were predicted (1-month delay: 21%, 2-month delay: 29%, and 3-month delay: 45%), as were 5-year and 10-year survival rates (Table 1). The authors conclude that physicians should encourage self-examination and alternatives modes of accessing dermatologists to decrease disease progression.

Abstract:
The coronavirus COVID-19 pandemic, which emerged in Wuhan, China several months ago, has led to large-scale lockdown in many countries around the world, including Spain. Uncertainty about the duration of these measures led us to consider the potential impact of diagnostic delays due to the paralyzation of certain health procedures and services on the prognosis of patients with melanoma.

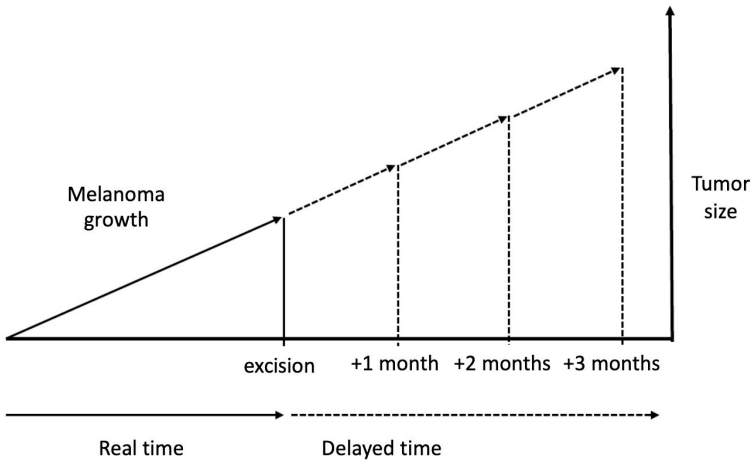


Figure 1: Theoretical basis of model. Growth rate over time to estimate tumor thickness in successive months.

THICKNESS	STUDY GROUP	1-MONTH DIAGNOSTIC DELAY	2-MONTH DIAGNOSTIC DELAY	3-MONTH DIAGNOSTIC DELAY
T1 (≤1 MM)	403 (40.3%)	339 (33.9%)	304 (30.4%)	275 (27.5%)
T2 (1.1–2.0 MM)	242 (24.2%)	227 (22.7%)	217 (21.7%)	219 (21.9%)
T3 (2.1–4 MM)	192 (19.2%)	202 (20.2%)	203 (20.3%)	202 (20.2%)
T4 (>4 MM)	163 (16.3%)	232 (23.2%)	276 (27.6%)	304 (30.4%)
ESTIMATED 5-YEAR SURVIVAL* (%)	94,2	93,2	92,7	92,3
ESTIMATED 10-YEAR SURVIVAL* (%)	90	88,8	88,1	87,6

*Based on American Joint Commiee on Cancer survival data for T1-T4 melanomas.

Table 1: Tumor thickness at diagnosis and estimated thickness after 1, 2, and 3, months of diagnostic delay based on rate of growth calculations (mm/month) for 1000 randomly selected melanomas from the database of the *Instituto Valenciano de Oncología*.

Dermatology patients' knowledge and concerns regarding their immunomodulatory medication during the COVID-19 pandemic.

Keeling E, Daly S, McKenna DB.
Dermatol Ther.
2020 May 1; PMID: 32356601.
Level of Evidence: 3 - Local non-random sample
Type of Article: Letter to the Editor

BLUF: This article details the results of a phone call survey involving 103 dermatology patients currently on immunomodulatory medications. The results of the survey indicated that there was concern and confusion over the use of these medications during the COVID-19 pandemic and the authors urge clinicians to communicate the risks and benefits with their individual patients.

Summary: This article details the results of a phone call survey involving 103 dermatology patients currently on immunomodulatory medications. The questionnaire asked questions on "demographics, co-morbidities *[sic]*, immunomodulatory agent and concern regarding immunosuppression." The results showed that "over 50% of patients considered themselves at high risk of the virus. This was highest for those on biologics and lowest for those on Apremilast, possibly due to an impression the latter was less immunosuppressive. Despite 63% expressing very or moderate concern regarding the virus only a minority sought further information, with only 12% consulting the health service website. There was a high degree of uncertainty expressed by patients about continuing their medication or whether they should be cocooning/sheltering." Due to this uncertainty, the authors suggest clinicians should evaluate individuals on immunomodulators and counsel them on the risks and benefits.

Hidradenitis suppurativa: the importance of virtual outpatient care during COVID-19 pandemic.

Shah M, Naik HB, Alhusayen R.
J Am Acad Dermatol.
2020 Apr 30; PMID: 32360857
Level of Evidence: 5 - Expert opinion
Type of Article: Letter

BLUF: The purpose of this letter is to review hidradenitis suppurativa (HS) management in an effort to lower the burden on the healthcare system. The authors reported that virtual visits with HS

patients were effective and allowed discussion on maintenance regimens for the prevention of disease flares.

Summarizing Excerpt:
"In our complex medical dermatology practices, we have implemented a similar triage system to Price et al. with 3 categories: 1. in-person, 2. virtual/phone, 3. cancel/reschedule. We find that the follow up of both HS and autoimmune bullous diseases through virtual visits is quite effective in a large proportion of patients, during which we utilize patient-reported outcomes such as pain scores, treatment satisfaction scores, and patient global assessments. Virtual visits also allow us to counsel patients regarding maintenance regimens for the prevention of disease flares, HS action plans informing steps to take during HS exacerbations and when to contact a provider, and methods to improve overall mental health, including maintaining a healthy diet, utilizing warm compresses and engaging in support groups through the CSPA [Canadian Skin Patient Alliance]."

Gastroenterology

APSDE-COVID statements: recommendations should be modified according to the prevalence of COVID infection rates

Bhandari, P; Alkandari, A
Gut
2020 Apr 30; PMID: 32354989
Level of Evidence: 5 - Expert Opinion
Type of Article: Letter

Summary: Authors in this letter comment upon the recommendations made by the Asian-Pacific Society for Digestive Endoscopy (APSDE) in regards to endoscopy in countries with a high incidence of COVID-19. Instead of waiting for reverse transcription PCR assays, which has a reported sensitivity of 70%, the authors recommend assuming all patients may have COVID-19 and proceed with urgent endoscopy since this procedure can be life-saving.

Hematology and Oncology

Management of CLL Patients Early in the COVID-19 Pandemic: An International Survey of CLL Experts.

Koffman B, Mato A, Byrd JC, Danilov A, Hedrick B, Ujjani C, Roeker L, Stephens DM, Davids MS, Pagel JM, Shadman M.
Am J Hematol.
2020 Apr 30; PMID: 32356356
Level of Evidence: 4 - Cross Sectional
Type of Article: Research

Summary: A questionnaire was sent to chronic lymphocytic leukemia (CLL) experts from four different countries regarding managing immunomodulating therapies for CLL patients during the COVID-19 pandemic. While most providers considered withholding CLL therapies for CLL patients with COVID-19, more providers were in favor of continuing Bruton tyrosine kinase inhibitors (BTKi) (32.5% vs. 4%, $p < 0.0001$). Most providers emphasized social isolation and COVID-19 screening if any levels of symptoms were noted.

Pulmonology

The Use of Bronchoscopy during the COVID-19 Pandemic: CHEST/AABIP Guideline and Expert Panel Report.

Wahidi MM, Shojaee S, Lamb CR, Ost D, Maldonado F, Eapen G, Caroff DA, Stevens MP, Ouellette DR, Lilly C, Gardner DD, Glisinski K, Pennington K, Alalawi R.
Chest.
2020 Apr 30, PMID: 32361152
Level of Evidence: 5 - Review
Article Type: Literature Review

BLUF: The authors conducted a review of current literature on guidelines for bronchoscopy use during COVID-19 and provided the following recommendations:

- If a patient confirmed with COVID-19 is undergoing bronchoscopy, use an N-95 mask or powered air purifier respirator.
- In suspected cases, obtain a nasopharyngeal specimen. If intubation is required then bronchoscopy with bronchoalveolar lavage can be done.
- In asymptomatic patients, healthcare providers should wear N-95 masks or powered air purifier respirator if entering the procedure room for bronchoscopy.
- Test patients for COVID-19 before performing bronchoscopy.
- If bronchoscopy is needed to diagnose, stage, or characterize lung cancer then it should be performed timely and safely.
- In recovered patients from COVID-19 where a bronchoscopy is needed, customize plan based on severity of infection and time from recovery.

Abstract:
Background: The coronavirus disease 2019 (COVID-19) has swept the globe and is causing significant morbidity and mortality. Given that the virus is transmitted via droplets, open airway procedures such as bronchoscopy pose a significant risk to health care workers (HCW). The goal of this guideline was to examine the current evidence on the role of bronchoscopy during the COVID-19 pandemic and the optimal protection of patients and HCW.
Methods: A group of approved panelists developed key clinical questions by using the PICO (population, intervention, comparator, and outcome) format that addressed specific topics on bronchoscopy related to COVID-19 infection and transmission. MEDLINE (via PubMed) was systematically searched for relevant literature and references were screened for inclusion. Validated evaluation tools were used to assess the quality of studies and to grade the level of evidence to support each recommendation. When evidence did not exist, suggestions were developed based on consensus using the modified Delphi process
Results: The systematic review and critical analysis of the literature based on six PICO questions resulted in six statements: one evidence-based graded recommendation and 5 ungraded consensus-based statements.
Conclusions: The evidence on the role of bronchoscopy during the COVID-19 pandemic is sparse. To maximize protection of patients and HCW, bronchoscopy should be used sparingly in the evaluation and management of patients with suspected or confirmed COVID-19 infections. In an area where community transmission of COVID-19 infection is present, bronchoscopy should be deferred for non-urgent indications and, if necessary to perform, HCW should wear personal protective equipment while performing the procedure even on asymptomatic patients.

Asthma and COVID-19: is asthma a risk factor for severe outcomes?

Johnston SL.

Allergy.
2020 May 2, PMID: 32358994
Level of Evidence: 5 - Expert Opinion
Type of Article: Letter

BLUF: In this letter, Dr. Sebastian Johnston, professor of Respiratory Medicine & Allergy at Imperial College London, believes that asthma will likely emerge as a significant risk factor for severity in COVID-19 as larger case series are reported. In order to mitigate risk of COVID-19 infection, the author recommends starting azithromycin prophylaxis in patients with asthma who have not met optimal asthma control with standard therapies.

Summarizing excerpt: "Treating/preventing COVID-19 severity with azithromycin in people with asthma in order to substantially boost IFN production by respiratory cells when infected with SARS-CoV-2, is clearly likely to be highly effective at reducing risk of severe outcomes. This conclusion is strongly supported by high quality clinical trial evidence that azithromycin prevents asthma exacerbations (which are mostly virus-induced) and is effective in prevention of severe lower respiratory tract illnesses (respiratory viral infections) in preschool children."

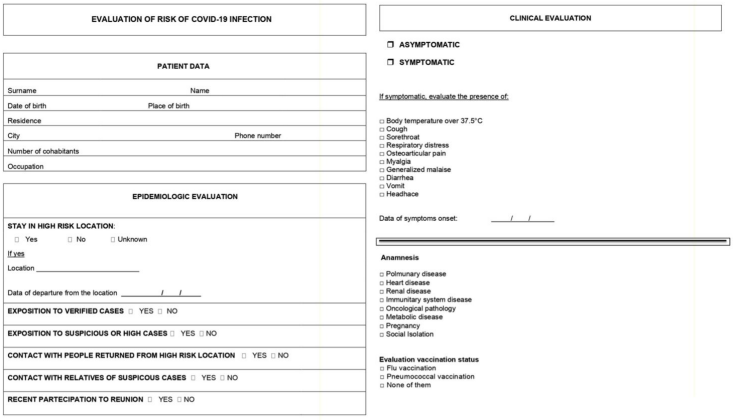
Surgical Subspecialties

General Surgery

Telephonic triage before surgical ward admission and telemedicine during COVID-19 outbreak in Italy. Effective and easy procedures to reduce in-hospital positivity.

Tolone S, et al.
Int J Surg
2020 Apr 20, PMID: 32360932
Level of Evidence: 5 – Expert Opinion
Type of Article: Commentary

Summary: The authors of this correspondence developed a telephonic triage questionnaire for prospective elective surgical patients in Italy during the COVID-19 pandemic, allowing the department to drastically reduce the infection rate by asking questions to gauge whether the patients have symptomatology or risk factors for SARS-CoV-2 infection. If there was suspicion for possible COVID-19, the surgical admission was delayed for 14 days.



EVALUATION OF RISK OF COVID-19 INFECTION

PATIENT DATA

Surname Name
Date of birth Place of birth
Residence
City Phone number
Number of cohabitants
Occupation

EPIDEMIOLOGIC EVALUATION

STAY IN HIGH RISK LOCATION:
☐ Yes ☐ No ☐ Unknown
If yes
Location _____
Data of departure from the location ____/____/____
EXPOSITION TO VERIFIED CASES ☐ YES ☐ NO
EXPOSITION TO SUSPICIOUS OR HIGH CASES ☐ YES ☐ NO
CONTACT WITH PEOPLE RETURNED FROM HIGH RISK LOCATION ☐ YES ☐ NO
CONTACT WITH RELATIVES OF SUSPICOUS CASES ☐ YES ☐ NO
RECENT PARTECIPATION TO REUNION ☐ YES ☐ NO

CLINICAL EVALUATION

❒ ASYMPTOMATIC
❒ SYMPTOMATIC

If symptomatic, evaluate the presence of:

□ Body temperature over 37.5°C
□ Cough
□ Sorethroat
□ Respiratory distress
□ Osteoarticular pain
□ Myalgia
□ Generalized malaise
□ Diarrhea
□ Vomit
□ Headhace

Data of symptoms onset: ____/____/____

Anamnesis

□ Polmunary disease
□ Heart disease
□ Renal disease
□ Immunitary system disease
□ Oncological pathology
□ Metabolic disease
□ Pregnancy
□ Social Isolation

Evaluation vaccination status
□ Flu vaccination
□ Pneumococcal vaccination
□ None of them

Figure 1. Telephonic triage questionnaire for evaluation of COVID-19 risk.

Our challenge is to adapt the organization of our system to the six stages of the epidemic to go beyond the COVID-19 crisis.

Tuech JJ, Gangloff A, Schwarz L.
Br J Surg.
2020 Apr 30; PMID: 32352560
Level of Evidence: 5 - Expert Opinion
Type of Article: Letter

Summary: A recommendation from the members of the Department of Digestive Surgery in Rouen, France regarding laparoscopic surgery recommendations during the six stages of of the COVID-19 pandemic ("stage 1, calm before the storm; stage 2, the storm; stage 3, the peak; stage 4, the plateau; stage 5, the decline; and stage 6, return to normal"). With concern for CO2 transmission of viral particles during surgery, the authors recommend to continue to postpone as many surgeries as possible through stage 3. They also note that after resumption of surgeries, oncological surgeries will predominate and cause further postponements for other surgical needs. Additionally, caregiver exhaustion needs to be taken into account when planning pre, post, and intra surgical care.

Otolaryngology

Status and strategies for the management of head and neck cancer during COVID-19 pandemic: Indian Scenario.

Gupta A, Arora V, Nair D, Agrawal N, Su YX, Holsinger C, Chan J.
Head Neck.
2020 May 1, PMID: 32357281
Level of Evidence: 4 - Cross-sectional
Article Type: Research

BLUF: A telephone survey conducted in India to head and neck surgeons obtained information from 16 head and neck healthcare facilities on current services, new patients, cancer surgeries performed, treatment of COVID-19 patients, and personal protective equipment (PPE) availability. The authors found that some hospitals are performing all surgeries, PPE is limited, very few clinics are doing telemedicine consults, and there are no current guidelines on management of head and neck cancer patients during the pandemic. Based on their findings, the authors conclude that separate facilities are needed for COVID-19 patients to reduce the risk of spread and that screening is necessary prior to a surgery.

Abstract:
In India, oral cancer is the most common head and neck cancer (HNC) in men in India, mainly due to the consumption of smoked and smokeless tobacco. During the current pandemic, delaying surgery for even 1-2 months may lead to more extensive surgery or inoperability, when only supportive care can be provided. Being semi-emergent in nature, treatment for these patients is currently on hold or delayed in most centres across the country. This study was conducted to assess the impact of COVID-19 pandemic and inability of the health system to treat HNC in a timely fashion and how surgeons are coping to this emergent situation. This article highlights the situation in Indian, a country burdened with one of the highest incidence of HNC.

Mitigation of Head and Neck Cancer Service Disruption During COVID-19 in Hong Kong Through Telehealth and Multi-institution Collaboration.

Lee AK, Cho RH, Lau EH, Cheng HK, Wong EW, Ku PK, Chan JY, Yeung ZW.
Head Neck

2020 May 1; PMID: 32357277
Level of Evidence: 5 - Expert Opinion
Type of Article: Review
BLUF: The authors describe their approach to resource allocation in a head and neck cancer service in Hong Kong. They recommend transferring appointments to telehealth when possible, taking specific perioperative protective measures including particular precautions during intubation, and reducing elective surgeries where feasible based on international otorhinolaryngology guidelines.

Abstract:
The 2019 novel coronavirus disease (COVID-19) pandemic has been spreading worldwide at an alarming rate. Healthcare workers have been confronted with the challenge of not only treating patients with the virus, but also managing the disruption of healthcare services caused by COVID-19. In anticipation of outbreak *[sic]*, clinic sessions and operation theatre lists have been actively cut back since February 2020 to reduce hospital admissions and clinic attendances. This has severely disrupted healthcare services, leading to accumulating clinic caseload and substantial delays for operations. The head and neck cancer service has been faced with the difficult task of managing the balance between infection risk to healthcare providers and the risk of disease progression from prolonged waiting times. We share our experience in Hong Kong on the mitigation of head and neck cancer service disruption through telehealth and multi-institution collaboration.

Urology

Intravesical therapy for bladder cancer in the pandemic of Covid-19.

Teoh JYC, Roupret M, Shariat SF, Herrmann T
World J Urol
2020 Apr 30; PMID: 32356225
Level of Evidence: 5 - Expert opinion
Type of Article: Letter to the Editor
BLUF: Adjuvant intravesical therapy has been advocated to optimize disease control in patients with non-muscle-invasive bladder cancer (NMIBC), but these treatments may lead to increased exposure to COVID-19. The authors recommend continuing intravesical Bacillus Calmette-Guerin (BCG) therapy in patients with high-risk NMIBC.

Summary: In patients with non-muscle-invasive bladder cancer (NMIBC), the use of chemotherapy or BCG instillations as intravesical therapy is recommended to optimize disease control. However, these therapies require repeated hospital visits which, given that the general demographic of patients with NMIBC is chronic smokers with a median age over 70 years, can increase the risk of SARS-CoV-2 infection. The authors believe that in patients with high-risk NMIBC, the benefit of continuing intravesical BCG therapy for better cancer control outweighs the potential risk of developing COVID-19, and they recommend at least 4 out of 6 induction doses and at least 2 out of 3 maintenance doses. It is uncertain if continuing BCG therapy is worthwhile during the COVID-19 pandemic in intermediate-risk NMIBC patients, and the authors emphasize the lack of data regarding postponing intravesical therapy.

Vascular

An increased severity of peripheral arterial disease in the COVID-19 era.

Sena G, Gallelli G.
J Vasc Surg.
2020 Apr 30; PMID: 32360372

Level of Evidence: 5 - Expert Opinion
Type of Article: Editorial
Summarizing excerpt:
With the initiation of lockdown in Italy, vascular surgeons there discuss the reduction of observation and diagnosis of patients with peripheral artery disease noting that since the pandemic they have observed an 80% (from 5 to 9) increase in amputations for critical limb ischemia compared to the same time last year. They note that " it is necessary to adopt more suitable measures to avoid other serious consequences on the health of citizens. Consequently, it would be necessary to identify paths that allow these patients to have rapid access to treatment with a marked outcome improvement."

OBGYN

Antenatal corticosteroid therapy and COVID-19 : pathophysiological considerations

Sichitiu J, Fakhouri F, Desseauve D
Acta Obstet Gynecol Scand.
2020 Apr 30; PMID: 32356302
Level of Evidence: 5 - Expert Opinion
Type of Article: Letter
Summary: In this letter to the editor, the authors respond to a recently published guideline for obstetric care during the COVID-19 pandemic by *Liang et al. 2020*, which recommends corticosteroids for fetal lung maturation when preterm delivery is anticipated. Sichitiu and colleagues acknowledge the recommendation but highlight the uncertainties surrounding the effect of corticosteroids on the clinical course of COVID-19. The authors conclude that more research is urgently needed and physicians should use caution when administering antenatal glucocorticoids.

Pediatrics

New clinical needs and strategies for care in children with neurodisability during COVID-19.

Fazzi, Elisa; Galli, Jessica.
Dev Med Child Neurol.
2020 May 2; PMID: 32358977
Level of Evidence: 5 - Expert opinion
Type of Article: Letter
Summary: Children with neurodisabilities face additional challenges during the COVID-19 pandemic due to changes in their daily routines and their own functional limitations. Authors emphasize the importance of maximizing communication by offering telerehabilitation and implementing call centers that offer immediate psychological/psychiatric support to combat the impacts of COVID-19 on mental health.

R&D: Diagnosis & Treatments

Current Diagnostics

Value and Challenges: Nucleic Acid Amplification Tests for SARS-CoV-2 in Hospitalized COVID-19 Patients.

Meng Y, Guo E, Liu J, Huang X, Sun C, Wu P, Chen G.
Journal of Infection
2020 Apr 30; PMID: 32360885
Level of Evidence: 3- Retrospective Analysis
Type of Article: Letter to Editor

BLUF: In this journal pre-proof, an interdisciplinary group from Tongji hospital in Wuhan, China conducted a retrospective analysis of 3,232 consecutive hospitalized COVID-19 patients to evaluate the current state of RNA-based diagnostic testing and the pattern of viral infection and clearance. The results suggest that current testing methods lack negative predictive value, but may be useful indicators of clinical course, prognosis, and clearance pattern. Limitations include selection bias for moderate-severe COVID-19 disease requiring hospitalization, and poor generalizability given the current variance in testing methods globally.

Summary:
"In summary, appropriate and efficient standards for testing are of great significance to prevent the sustained spread of COVID-19 and monitor disease progression for patients. Therefore, this study highlights the following observations:"

- Nasopharyngeal swab is preferred over oropharyngeal, given higher specificity.
- Persistently positive RNA testing is associated with a worse prognosis
- Negative viral tests may not necessarily indicate improvement of disease
- Clinical sampling frequency for hospitalized patients with COVID-19 should be based on coronavirus infection and clearance pattern.

Respiratory Sampling for SARS-CoV-2 - An Overview.

See A, Toh ST
Head Neck
2020 May 1; PMID: 32357381
Level of Evidence: 5 - Review
Type of Article: Literature Review

BLUF: The purpose of this letter is to review various methods of SARS-CoV-2 viral detection including nasal/pharyngeal specimens, oropharyngeal swabs, lingual swabs, sputum collection, tracheal aspiration and bronchoalveolar lavage. Overall, it was determined that lower respiratory tract specimens, especially BAL, tend to give a higher diagnostic yield than upper respiratory specimens although it is an inappropriate screening tool. Therefore, nasopharyngeal and oropharyngeal flocked swabs were recommended for rapid mass SARS-CoV-2 viral detection.

Abstract:
The novel coronavirus disease 2019 (COVID-19) is caused by the severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) and was declared a pandemic in March 2020. A plethora of respiratory sampling methods for SARS-CoV-2 viral detection has been used and in the current evolving situation, there is no international consensus on the recommended method of respiratory sampling for diagnosis. Otolaryngologists deal intimately with the upper respiratory tract and a clear

understanding of the respiratory sampling methods is of paramount importance. This article aims to provide an overview of the various methods and their evidence till date.

Developments in Treatments

A Rapid Systematic Review of Clinical Trials Utilizing Chloroquine and Hydroxychloroquine as a Treatment for COVID-19.

Chowdhury MS, Rathod J, Gernsheimer J.
Acad Emerg Med
2020 May 2; PMID: 32359203
Level of Evidence: 3 - Systematic Review
Type of Article: Review

BLUF: The authors performed a systematic review of literature on using chloroquine and hydroxychloroquine as treatments for COVID-19. They found seven completed and 29 registered clinical trials; five out of the seven completed had favorable outcomes for patients using chloroquine or hydroxychloroquine and two out of seven had no difference compared to control. They noted that the seven completed trials had varying degrees of bias and study design quality and argue that there is not yet enough evidence to routinely use these therapies for COVID-19 treatment.

Abstract:
Background: The emergence of SARS-CoV-2 has presented clinicians with a difficult therapeutic dilemma. With supportive care as the current mainstay of treatment, the fatality rate of COVID-19 is 6.9%. There are currently several trials assessing the efficacy of different antivirals as treatment. Of these, Chloroquine (CQ) and derivative, Hydroxychloroquine (HCQ), have garnered the most attention.
Methods: In this study, the literature currently available on CQ and HCQ as treatment of COVID-19 was surveyed using EMBASE, PubMed, Cochrane Library, MedRxiv and 1 clinical trial registry. Upon gathering published and preprint trials, risk of bias was assessed using Cochrane Risk of Bias Tool 2.0.
Results: There are currently 7 completed clinical trials and 29 registered clinical trials focusing on HCQ or CQ as a therapeutic avenue for COVID-19. Of these, 5/7 trials have shown favorable outcomes for patients using CQ or HCQ and 2/7 have shown no change compared to control. However, all 7 trials carried varying degrees of bias and poor study design.
Conclusion: There is currently not enough data available to support the routine use of HCQ and CQ as therapies for COVID-19. Pending further results from more extensive studies with more stringent study parameters, clinicians should defer from routine use of HCQ and CQ. There are several clinical trials currently underway with results expected soon.

Efficacy and safety of current therapeutic options for COVID-19 - lessons to be learnt from SARS and MERS epidemic: A systematic review and meta-analysis.

Zhong H, Wang Y, Zhang ZL, Liu YX, Le KJ, Cui M, Yu YT, Gu ZC, Gao Y, Lin HW.
Pharmacol Res.
2020 Apr 30; PMID: 32360583.
Level of Evidence: 2 - Meta-analysis
Type of Article: Meta-analysis

BLUF: This meta-analysis reviews 18 articles (five randomized control trials (RCTs), two prospective cohort studies, 11 retrospective cohort studies) detailing the efficacy and safety of current therapies such as antivirals and hydroxychloroquin for SARS, MERS and COVID-19. They found that compared

to control treatments, current coronavirus therapies have significantly reduced mortality (RR= 0.65), shown clinical (RR=1.52) and radiographic (RR 1.62) improvement but have not shown a clear effect on virological eradication, incidence of ARDS, intubation or adverse events. However, given the overall low quality of evidence, they could not draw a clear conclusion regarding specific COVID-19 treatment without more randomized control trials.

Abstract:
The rapidly progressing of coronavirus disease 2019 (COVID-19) pandemic has become a global concern. This meta-analysis aimed at evaluating the efficacy and safety of current option of therapies for severe acute respiratory syndrome (SARS), Middle Eastern respiratory syndrome (MERS) besides COVID-19, in an attempt to identify promising therapy for severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) infected patients. We searched PubMed, EMBASE, Cochrane Library, China National Knowledge Infrastructure (CNKI), China Science and Technology Journal Database (VIP), and WANFANG DATA for randomized controlled trials (RCTs), prospective cohort, and retrospective cohort studies that evaluated therapies (hydroxychloroquine, lopinavir/ritonavir-based therapy, and ribavirin-based therapy, etc.) for SARS, MERS, and COVID-19. The primary outcomes were mortality, virological eradication and clinical improvement, and secondary outcomes were improvement of symptoms and chest radiography results, incidence of acute respiratory disease syndrome (ARDS), utilization of mechanical ventilation, and adverse events (AEs). Summary relative risks (RRs) and 95% confidence intervals (CIs) were calculated using random-effects models, and the quality of evidence was appraised using GRADEpro. Eighteen articles (5 RCTs, 2 prospective cohort studies, and 11 retrospective cohort studies) involving 4,941 patients were included. Compared with control treatment, anti-coronary virus *[sic]* interventions significantly reduced mortality (RR 0.65, 95% CI 0.44-0.96; I2 = 81.3%), remarkably ameliorate clinical improvement (RR 1.52, 95% CI 1.05-2.19) and radiographical *[sic]* improvement (RR 1.62, 95% CI 1.11-2.36, I2 = 11.0 %), without manifesting clear effect on virological eradication, incidence of ARDS, intubation, and AEs. Subgroup analyses demonstrated that the combination of ribavirin and corticosteroids remarkably decreased mortality (RR 0.43, 95% CI 0.27-0.68). The lopinavir/ritonavir-based combination showed superior virological eradication and radiographical improvement with reduced rate of ARDS. Likewise, hydroxychloroquine improved radiographical *[sic]* result. For safety, ribavirin could induce more bradycardia, anemia and transaminitis. Meanwhile, hydroxychloroquine could increase AEs rate especially diarrhea. Overall, the quality of evidence on most outcomes were very low. In conclusion, although we could not draw a clear conclusion for the recommendation of potential therapies for COVID-19 considering the very low quality of evidence and wide heterogeneity of interventions and indications, our results may help clinicians to comprehensively understand the advantages and drawbacks of each anti-coronavirus agents on efficacy and safety profiles. Lopinavir/ritonavir combinations might observe better virological eradication capability than other anti-coronavirus agents. Conversely, ribavirin might cause more safety concerns especially bradycardia. Thus, large RCTs objectively assessing the efficacy of antiviral therapies for SARS-CoV-2 infections should be conducted with high priority.

Convalescent plasma transfusion for the treatment of COVID-19: Systematic review.

Rajendran, Karthick; Narayanasamy, Krishnasamy; Rangarajan, Jayanthi; Rathinam, Jeyalalitha; Natarajan, Murugan; Ramachandran, Arunkumar.
J Med Virol.
2020 May 1; PMID: 32356910
Level of Evidence: 3 – Systematic Review
Type of Article: Research

BLUF: In the evaluation of five studies of 27 patients using convalescent plasma transfusion in COVID-19 patients, the intervention is shown to be safe, clinically effective, and beneficial in reducing mortality.

Abstract:
Background: The recent emergence of COVID-19 pandemic has reassessed the usefulness of historic convalescent plasma transfusion (CPT). This review was conducted to evaluate the effectiveness of CPT therapy in COVID-19 patients based on the publications reported till date. To our knowledge, this is the first systematic review on convalescent plasma on clinically relevant outcomes in individuals with COVID-19.
Methods: PubMed, EMBASE and Medline databases were searched upto 19 April 2020. All records were screened as per the protocol eligibility criteria.
Results: We included 5 studies reporting CPT to COVID-19 patients. The main findings from available data are as follows: (1) Convalescent plasma may reduce mortality in critically ill patients (2) Increase in neutralizing antibody titers and disappearance of SARS-CoV-2 RNA was observed in almost all the patients after CPT therapy (3) Beneficial effect on clinical symptoms after administration of convalescent plasma.
Conclusions: Based on the limited scientific data, CPT therapy in COVID-19 patient appears safe, clinically effective and reduces mortality. Well-designed large multi center clinical trial studies should be conducted urgently to establish the efficacy of CPT to COVID-19 patients.

2019 Novel Coronavirus Disease (COVID-19) in Hemodialysis Patients: A Report of Two Cases.

Chunjin Ke, Yufeng Wang, Xing Zeng, Chunguang Yang, Zhiquan Hu
Clin Biochem
2020 Apr 30; PMID: 32360479
Level of Evidence: 4 - Case series
Type of Article: Case reports
BLUF: Reported were two cases of patients diagnosed with coronavirus pneumonia and chronic renal failure who received continuous venovenous hemodiafiltration (CVVHDF). CVVHDF has been shown to remove endo- and chemical toxins. Thus, the reduction of excessive cytokines may relieve cytokine-storm and multi-organ function failure commonly found in COVID-19 patients. More specifically, blood purification technology was shown to protect these two COVID-19 patients from severe pneumonia.

Abstract:
Objective: To analyze the diagnosis and treatment of patients with chronic renal failure complicated with novel coronavirus pneumonia, and to evaluate the effect of blood purification technology on the treatment and prognosis of such patients
Methods: Two COVID-19 cases undergoing hemodialysis with chronic renal failure were retrospectively analysed in our hospital.
Results: Two COVID-19 patients were admitted to hospital due to cough, with or without fever. Laboratory tests showed decreased lymphocyte count, elevated PCT, IL-10, IL-6, TNF-α, IL-2R, high-sensitivity cardiac troponin I, NT-proBNP, creatinine, and urea nitrogen. Chest CT scan showed multiple blurred plaques and patchy shadows in both patients. Two patients received continuous venovenous hemodiafiltration (CVVHDF) every other day for 4-6 hours every time, in addition to the standard treatment. After CVVHDF, not only cytokines were reduced, but also liver function and cardiac function significantly improved. Both patients did not develop severe pneumonia. They were discharged on March 1, 2020 when meeting the discharge criteria.

Conclusion: Two COVID-19 patients on maintenance hemodialysis discharged after a month of hospitalization. The removal of cytokines through blood purification technology may be beneficial for the recovery of COVID-19 patients.

Drug Reaction With Eosinophilia and Systemic Symptoms Syndrome to Hydroxychloroquine, an Old Drug in the Spotlight

Grandolfo M, Romita P, Bonamonte D, Cazzato G, Hansel K, Stingeni L, Conforti C, Giuffrida R, Foti C.
Dermatol Ther
2020 May 02; PMID: 32362051
Level of Evidence: 4 – Case Report
Type of Article: Letter

Summary: The authors present a case of a drug reaction with eosinophilia and systemic systems (DRESS) in a 60-year-old female patient started on 400mg oral hydroxychloroquine (HCQ) once per day for lichen planopilaris (also taking proton pump inhibitors for hiatal hernia, angiotensin converting enzyme (ACE) inhibitors for hypertension, and levothyroxine for Hashimoto's thyroiditis). They report eosinophilia and severe leukocytosis, bilateral lymphadenopathy, and serology negative for many viruses. Symptoms resolved with withdrawal of HCQ; thus the authors highlight the need for anticipation of and surveillance for these symptoms in patients with COVID-19 prescribed HCQ.

Nitazoxanide/Azithromycin combination for COVID-19: A suggested new protocol for COVID-19 early management.

Kelleni MT.
Pharmacol Res.
2020 Apr 30; PMID: 3236058
Level of Evidence: 5- Mechanism-based research
Type of Article: Review

BLUF: This mechanism-based review proposes the potential use of Nitazoxanide, an anti-diarrheal medication, and Ivermectin, a broad spectrum anti-fungal, as therapeutic options to be used in combination with Azithromycin. The evidence provided is based on mechanistic theory and in-vitro studies.

Abstract:
Azithromycin has been shown to have a clinical efficacy against severe acute respiratory syndrome coronavirus 2; ivermectin has also demonstrated a remarkable experimental efficacy with a potential to be used for Coronavirus disease 2019. Further, BCG vaccination is being considered for clinical trials aiming to test its potential for lowering COVID-19 morbidity and mortality. This article illustrates some structural and functional relationships that may gather these drugs and the author, basing*[sic]* on a combined pathophysiological and pharmacological approach, recommends the FDA-approved antidiarrhea drug; nitazoxanide, which has been previously suggested but unfortunately ignored, to be tested in combination with azithromycin for their potential activity against SARS CoV-2, soonest. The author also recommends testing their combined administration as early during the clinical course of COVID-19 as possible. Further, basing *[sic]* on the same represented concept, the author suggests more trials for interferons to be tested against SARS CoV-2, especially in severe and critical cases.

Current targeted therapeutics against COVID-19: based on first-line experience in china.

Zhang Y, Xu Q, Sun Z, Zhou L
Pharmacol Res
2020 Apr 30; PMID: 32360585
Level of Evidence: 5- Literature Review
Type of Article: Review

BLUF: A review of treatment options for COVID-19 including their prior indications, contraindications, mechanisms, and a brief overview of evidence and guidelines to date for their use against COVID-19. Drugs covered in this review include: remdesivir, chloroquine and hydroxychloroquine, favipiravir, arbidol, lopinavir/ritonavir, ribavirin, interferon, corticosteroids, tocilizumab, and traditional chinese medicine. Based on available evidence, the authors conclude favipiravir and interferon could be effective in mild to moderate cases of COVID-19, remdesivir and chloroquine could be effective in severe cases, and low-to-moderate corticosteroid and tocilizumab could be used to combat cytokine storm in critically ill patients.

Abstract:
SARS-CoV-2 is a novel strain, causing a global pandemic since the end of 2019. The majority of patients showed nonspecific symptoms such as fever, dry cough, and fatigue. Most patients have a good prognosis while some with severe conditions could rapidly progress to acute respiratory distress syndrome, septic shock, metabolic acidosis, coagulation dysfunction, and even die. The exacerbation of the patient's condition may be due to a cytokine storm in the body. Effective targeted therapies including antiviral and immunization are urgently needed. Although many clinical trials are already underway and the majority of patients have received antiviral therapy based on medication experience with severe acute respiratory syndrome (SARS) and Middle East respiratory syndrome (MERS), and preliminary results from some clinical trials, there are no antiviral drugs proven to be effective currently. We summarize the current therapeutic medicines used in the clinic, hope [*sic*] to be able to provide some implications for clinical medication

A rational roadmap for SARS-CoV-2/COVID-19 pharmacotherapeutic research and development. IUPHAR review "XXX".

Alexander S, Armstrong J, Davenport A, Davies J, Faccenda E, Harding S, Levi-Schaffer F, Maguire J, Pawson A, Southan C, Spedding M.
Br J Pharmacol.
2020 May 1; PMID: 32358833
Level of Evidence: 5- Literature review
Type of Article: Review

BLUF: In this review, an international group of pharmacology experts collaborate to provide a detailed “roadmap” outlining short-term and long-term strategies for effective drug development in response to the current SARS-CoV-2 pandemic, and also for potential future pandemics. The review is predominantly driven by molecular mechanism-based theory, such as targeting the angiotensin converting enzyme (ACE)2 receptor interaction and other virulence factors (figure 1); however, it is a comprehensive and evidence-based review that provides a useful foundation for drug development.

Summary:
“In this review, we identify opportunities for drug discovery in the treatment of COVID-19 and in so doing, provide a rational roadmap whereby pharmacology and pharmacologists can mitigate against the global pandemic. We assess the scope for targetting *[sic]* key host and viral targets in the

mid-term, by first screening these targets against drugs already licensed; an agenda for drug re-purposing, which should allow rapid translation to clinical trials. A simultaneous, multi-pronged approach using conventional drug discovery methodologies aimed at discovering novel chemical and biological means targetting *[sic]* a short-list of host and viral entities should extend the arsenal of anti-SARS-CoV-2 agents. This longer-term strategy would provide a deeper pool of drug choices for future-proofing against acquired drug resistance. Second, there will be further viral threats, which will inevitably evade existing vaccines. This will require a coherent therapeutic strategy which pharmacology and pharmacologists are best placed to provide."

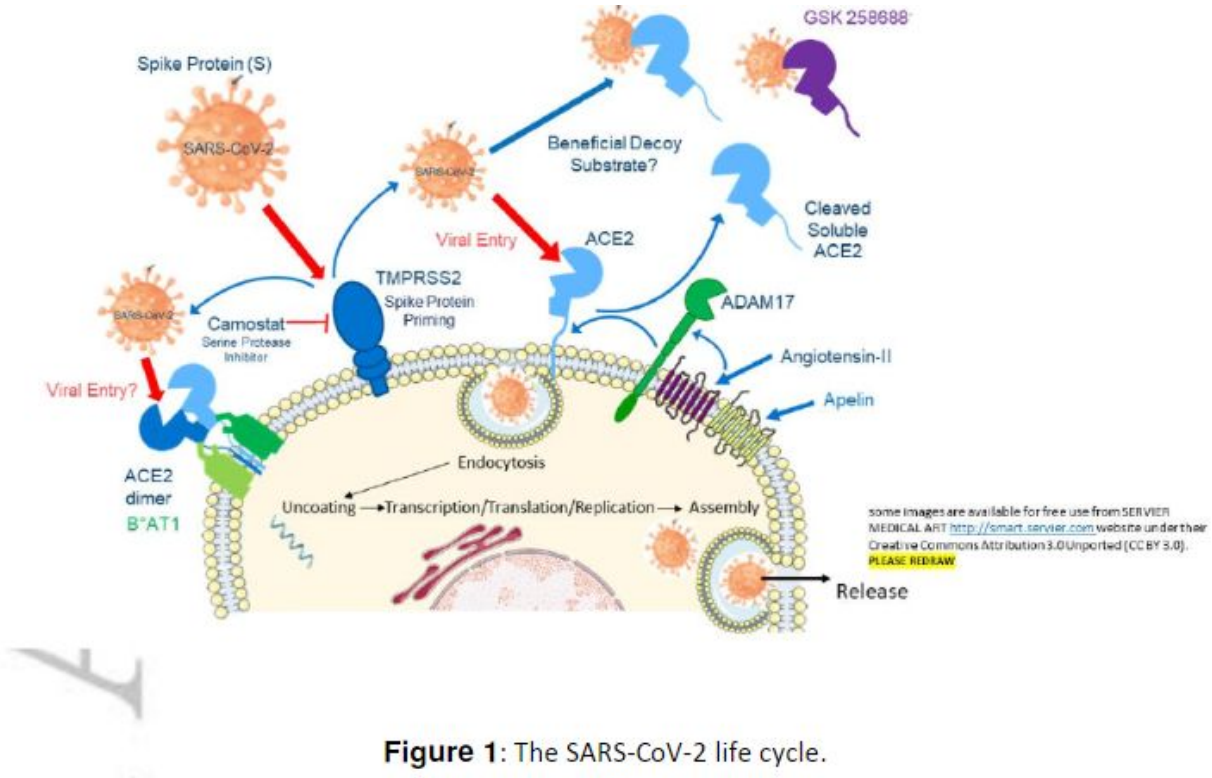


Figure 1: The SARS-CoV-2 life cycle.

Dose rationale for favipiravir use in patients infected with SARS-CoV-2.

Eloy P, Solas C, Touret F, Mentré F, Malvy D, de Lamballerie X, Guedj J.Eloy P, et al.
Clin Pharmacol Ther.
2020 Apr 29; PMID: 32350860
Level of Evidence: 5 – Expert Opinion
Article Type: Letter to the Editor

BLUF: The authors suggest a loading dose of favipiravir in patients infected with SARS-CoV-2 of 2400mg twice a day the first day, followed by 1600mg twice a day for nine days, which they think will achieve a trough of about 70 µg/mL. They estimate this dose would be useful for COVID-19 based on previous experience treating Ebola.

Abstract:
We read with a great interest the paper by Du et Chen suggesting dosing *[sic]* regimen of favipiravir in COVID-191 . We would like to complement their observations with our PK/PD experience of favipiravir against Ebola virus (EBOV). The drug EC50 against EBOV and SARS-CoV-2 are 10-60 µg/ml and 9.4 µg/ml4 , respectively. However results obtained by our working group suggest a higher value of EC50 , in the range 40-80 µg/ml (X. de Lamballerie & F. Touret, unpublished results). We therefore use the conservative assumption that the drug EC50 against SARS-CoV-2 is in the same range as against EBOV.

Off-target ACE2 ligands: possible therapeutic option for CoVid-19?

Brogi S, Calderone V, et al.
Br J Clin Pharmacol.
2020 May 2; PMID: 32359080
Level of Evidence: 5 - Expert Opinion
Type of Article: Letter

BLUF: Drugs which interact with the SARS-COV-2-angiotensin converting enzyme (ACE)2 pathway should be investigated for positive outcomes. These well-established and low cost treatments can be rapidly facilitated if shown to be effective. Candidates include: closiprazine, diminazene, hydroxyzine, chlorprothixene, hycanthone, fominoben, tiramid, aprindine, and labetalol.

Summary: The binding between SARS-COV-2 and the host ACE2 is a key factor for initiating the viral infection. Therefore, interfering with the interaction between these two proteins may represent a useful pharmacological strategy. Drugs which act on this pathway are well-established and are relatively "low cost" treatments. Thus, they should be submitted to rapid preclinical tests in specialized laboratories, evaluating their effects on ACE2-spike protein interaction and/or on the ACE2-mediated SARS-CoV-2 entry into the host cells. In the case of positive outcomes, the direct translation into the clinic would be sure and extremely rapid and facilitated.

Adipose-derived stromal stem cells (ASCs) as a new regenerative immediate therapy combating coronavirus (COVID-19)-induced pneumonia.

Gentile P, Sterodimas A.Gentile P, et al.
Expert Opin Biol Ther.
2020 Apr 29; PMID: 32329380
Level of Evidence: 5 – Expert Opinion
Article Type: Letter to the Editor

Summary: Clinical trials are being done to see whether adipose-derived stromal stem cell (ASC) and mesenchymal stem cell (MSC) infusions could benefit patients with COVID-19. The authors say it is too early to know if they will eventually become part of standard COVID-19 treatment, but are optimistic and look forward to potential applications for these therapies.

Resources

Immediate and Long-Term Impact of the COVID-19 Pandemic on Delivery of Surgical Services

Søreide K, Hallet J, Matthews JB, Schnitzbauer AA, Line PD, Lai PBS, Otero J, Callegaro D, Warner SG, Baxter NN, Teh CSC, Ng-Kamstra J, Meara JG, Hagander L, Lorenzon L.
Br J Surg.
2020 Apr 30; PMID: 32350857
Level of Evidence: 4- Review
Type of Article: Review

BLUF: A review of available sources including electronic databases, websites, preprint repositories and webinars pertaining to COVID-19, showed that during this pandemic, patients were deprived of surgical access leading to possible loss of function and adverse prognosis. This information leads to the need for post-pandemic evaluation and future planning for surgical services during an outbreak.

Abstract:
Background: The ongoing pandemic is having a collateral health effect on delivery of surgical care to millions of patients. Very little is known about pandemic management and effects on other services, including delivery of surgery.
Methods: This was a scoping review of all available literature pertaining to COVID-19 and surgery, using electronic databases, society websites, webinars and preprint repositories.
Results: Several perioperative guidelines have been issued within a short time. Many suggestions are contradictory and based on anecdotal data at best. As regions with the highest volume of operations per capita are being hit, an unprecedented number of operations are being cancelled or deferred. No major stakeholder seems to have considered how a pandemic deprives patients with a surgical condition of resources, with patients disproportionately affected owing to the nature of treatment (use of anaesthesia, operating rooms, protective equipment, physical invasion and need for perioperative care). No recommendations exist regarding how to reopen surgical delivery. The postpandemic evaluation and future planning should involve surgical services as an essential part to maintain appropriate surgical care for the population during an outbreak. Surgical delivery, owing to its cross-cutting nature and synergistic effects on health systems at large, needs to be built into the WHO agenda for national health planning**.**
Conclusion: Patients are being deprived of surgical access, with uncertain loss of function and risk of adverse prognosis as a collateral effect of the pandemic. Surgical services need a contingency plan for maintaining surgical care in an ongoing or postpandemic phase.

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