

The Daily COVID-19 Literature Surveillance Summary

May 28, 2020



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COVID-19 Daily Literature Surveillance

COVID19LST



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

LEVEL OF EVIDENCE

Oxford Centre for Evidence-Based Medicine 2011 Levels of Evidence

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

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

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

How to cite the Levels of Evidence Table

OCEBM Levels of Evidence Working Group*. "The Oxford 2011 Levels of Evidence". Oxford Centre for Evidence-Based Medicine. <http://www.cebm.net/index.aspx?o=5653>

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

EXECUTIVE SUMMARY

Climate

- Two Cincinnati physicians [present a point-counterpoint argument on the fine line between duty, autonomy, and nonmaleficence](#) when young physicians without specific critical care training are called to serve in an ICU during COVID-19.
- Based on a historical cohort study investigating mortality rates during the 2017-2018 flu epidemic, investigators urge [strict distancing precautions and early detection in individuals with intellectual disability and their caregivers](#).

Epidemiology

- Artificial intelligence (AI) is increasingly a topic of interest. However, based on this [systematic review of 8 papers investigating AI's use in diagnosing different coronaviruses](#), more research is still needed.
- Two groups from London continue the search for the best predictive and prognostic indicators in COVID-19 with two different systematic reviews and meta-analyses. One analysis of seven studies (n=1813 COVID-19 patients) [determined dyspnea was a reliable predictor of severe disease](#). A second analysis of 28 studies on a more heterogeneous population underscores the importance of [long term follow-up for psychological and physical complications](#).

Understanding the Pathology

- Hepatologists summarize the [pathophysiology of liver injury](#) in patients with COVID-19, and propose that SARS-CoV-2 may cause cytopathic damage to hepatocytes by inducing cellular stress, cytokine dysregulation, or disrupting essential functions of cholangiocytes expressing angiotensin-2 converting enzyme (ACE2).

Management

- A link between [hypoalbuminemia and COVID-19](#) was found after a systematic review and meta-analysis of 11 studies conducted by researchers from the University of Toledo.
 - Specifically, weighted mean serum albumin on admission for severe COVID-19 [3.50 g/dL (CI 3.26–3.74 g/dL)] was significantly lower than non-severe COVID-19 [4.05 g/dL (CI 3.82–4.27 g/dL)] ($p<0.001$).
 - Based on these results, the authors suggest low serum albumin may aid recognition of severe disease.
- A [positive association \(\$p=0.031\$ \) between hyponatremia and severe outcome \(ICU admission, ventilation, death\) in high-IL-6 patients](#) and increased sodium levels in severe patients with high IL-6 (n=8) 48 hours post-tocilizumab treatment were found in a retrospective analysis of COVID-19 patients (n=29).
 - Authors suggest a mechanism of IL-6-induced vasopressin release that results in hyponatremia.

Adjusting Practice

- Guidelines and recommendations for practice today include:
 - Accommodating for [drug shortages](#) during the pandemic
 - [Breast imaging](#)
 - [Cardiac imaging](#) from the European Society of Cardiovascular Radiology
 - [Hepatocellular carcinoma surveillance](#)
 - How psychiatrists can help [reduce the pandemic's toll on mental health](#)
- A survey of 114 healthcare workers in Munich, Germany found that [90% of respondents reported symptoms of acute hand dermatitis](#) likely due to increased hand washing suggesting that better skin care measures should be taken to ensure protection of healthcare workers' hands.
- A global survey of orthopedic oncologists found [that 20% reported delays and 21% reported cancellations in surgery for bone sarcomas](#) leading the authors to stress the urgent need for these patients to safely access cancer care.
- A retrospective cohort study of 1,754 pregnant persons found that pregnant patients during the COVID-19 pandemic were more likely to report [higher levels of depressive, anxiety, dissociative, and PTSD symptoms](#) than a comparable cohort of pre-COVID-19 pregnant patients. Given the harmful effects of maternal distress on fetal wellbeing, providers should watch for mental health symptoms.

R&D Diagnostics and Therapeutics

- In an in-silico study, authors determined the most likely configurations in which the S-protein of SARS-CoV-2 binds the angiotensin converting enzyme (ACE) 2 receptor and screened already approved drugs. Results suggest that [compounds with hydroxyl groups and monosaccharide moieties](#) may have the highest binding affinities.
- [Cetylpyridinium chloride](#) (a quaternary ammonium compound) causes virus inactivation by lysosomotropic action, suggesting the need of further study of this drug in the form of a mouthwash or nasal spray to combat SARS-CoV-2 at its point of entry.
- Authors describe methodology used to develop and implement the [first COVID-19 convalescent plasma program](#) at the New York Blood Center enterprises and provide recommendations for optimizing future COVID-19 convalescent plasma programs.

Mental Health and Resilience

- A [self-reported questionnaire of healthcare and non-healthcare workers](#) during the peak of infection in Spain found that healthcare workers had increased stress compared to non-healthcare workers, nurses scored higher in all emotional assessments (depression, anxiety, and stress) compared to other health professionals, and trainee-physicians had higher depression scores than their senior colleagues.
- The Children's Hospital at Zhejiang University School of Medicine in Shanghai launched the [Children Health Initiative for Children and Adolescents \(CHI\)](#), an internet-based interactive platform designed to support children and adolescents during the COVID-19 pandemic by promoting physical and mental wellbeing.

Silver Linings

- A review in Australia suggests that current adjustments during the COVID-19 pandemic -- emergence of phone- and online-based services, streamlined pharmacy services and specialist consultations -- offer insight into what [more accessible and inclusive primary care could look like](#).

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CLIMATE

AFFECTING THE HEALTHCARE WORKFORCE

HOW STRONG IS THE DUTY TO TREAT IN A PANDEMIC? ETHICS IN PRACTICE: POINT-COUNTERPOINT

Citation: Otolaryngol Head Neck Surg. 2020 May 26:194599820930246. doi: 10.1177/0194599820930246. Online ahead of print.

Level of Evidence: Other

BLUF

This editorial posits the hypothetical case of a pediatric otolaryngology fellow who has been asked to cover the adult intensive care unit (ICU) as part of the response to the COVID-19 pandemic. While it is a fundamental principle of medicine that it is a physician's responsibility to care for patients even at risk of personal cost, the competing ethical principles of autonomy and non-maleficence would suggest that this fellow should inquire about risk mitigation and their trainee status prior to agreeing to serve in the ICU.

DISPARITIES

MORTALITY OF PEOPLE WITH INTELLECTUAL DISABILITIES DURING THE 2017/2018 INFLUENZA EPIDEMIC IN THE NETHERLANDS: POTENTIAL IMPLICATIONS FOR THE COVID-19 PANDEMIC

Citation: J Intellect Disabil Res. 2020 May 26. doi: 10.1111/jir.12739. Online ahead of print.

Level of Evidence: 4

BLUF

A historical cohort study conducted in the Netherlands regarding mortality rates during the 2017-2018 influenza epidemic among people with intellectual disabilities (ID) versus the general population. The study found mortality rates among people with ID tripled when compared to the general population (15.2% vs 5.4%) and were greatest among ID groups aged 45+ with congenital abnormalities and comorbidities (Figure 1). The authors hypothesize this increase in ID mortality was due to close proximity with caregivers and encourage strict distancing precautions and early detection to prevent similar mortality rates during the COVID-19 pandemic.

ABSTRACT

BACKGROUND: Data on the development of Covid-19 among people with intellectual disabilities (IDs) are scarce and it is uncertain to what extent general population data applies to people with ID. To give an indication of possible implications, this study investigated excess mortality patterns during a previous influenza epidemic.

METHODS: Using Dutch population and mortality registers, a historical cohort study was designed to compare mortality during the 2017-2018 influenza epidemic with mortality in the same period in the three previous years. People with ID were identified by entitlements to residential ID-care services as retrieved from a national database.

RESULTS: Data covered the entire adult Dutch population (12.6 million; GenPop), of which 91 064 individuals were identified with an ID. During the influenza epidemic, mortality among people with ID increased almost three times as much than in the GenPop (15.2% vs. 5.4%), and more among male individuals with ID (+19.5%) than among female individuals with ID (+10.6%), as compared with baseline. In both cohorts, comparable increases in mortality within older age groups and due to respiratory causes were seen. Particularly in the ID-cohort, excess deaths also occurred in younger age groups, due to endocrine diseases and ID-specific causes. **CONCLUSIONS:** During the 2017-2018 influenza epidemic, excess mortality among people with ID was three times higher than in the general Dutch population, appeared more often at young age and with a broader range of underlying causes. These findings suggest that a pandemic may disproportionately affect people with ID while population data may not immediately raise warnings. Early detection of diverging patterns and faster implementation of tailored strategies therefore require collection of good quality data.

FIGURES

Characteristic	ID Population (N = 91 064)	ID Mortality (N = 3526)	GenPop Population (N = 12 677 768)	GenPop Mortality (N = 356 834)
Sex, N (%)				
Males	50 983 (56.0%)	1856 (52.6%)	6 196 789 (48.9%)	170 611 (47.8%)
Females	40 081 (44.0%)	1670 (47.4%)	6 480 979 (51.1%)	186 223 (52.2%)
Age, M (SD)	40.3 (16.4)	63.9 (14.5)	48.3 (17.8)	78.9 (12.8)
Age groups, N (%) ¹				
18–44 years ¹	54 251 (59.6%)	438 (12.4%)	5 519 390 (43.5%)	8644 (2.4%)
45–64 years	29 103 (32.0%)	1742 (49.4%)	4 562 499 (36.0%)	58 616 (16.4%)
65 years and older	7710 (8.5%)	1346 (38.2%)	2 595 879 (20.5%)	289 574 (81.2%)

¹ ID, intellectual disability.

¹ Age groups refer to age at enrolment.

Table 1. Demographics at enrolment and total number of analyzed cases of mortality.

COST-RELATED ANTIHYPERTENSIVE MEDICATION NONADHERENCE:ACTION IN THE TIME OF COVID-19 AND BEYOND

Citation: Am J Hypertens. 2020 May 25:hpaa085. doi: 10.1093/ajh/hpaa085. Online ahead of print.

Level of Evidence: Other

BLUF

Two US public health experts address cost-related medication non-adherence to antihypertensive medications during the COVID-19 pandemic, citing [*Feng et al. \(2020\)*](#), as evidence of cost as a substantial barrier to medication compliance. The authors acknowledge that loss of employer-sponsored healthcare with unemployment exacerbates the problem of medication adherence. Thus, they propose provider-centric initiatives of opting for generics and effective low-cost alternative medications, as well as expansion of Medicare Part D to reduce the cost burden of these medications.

EPIDEMIOLOGY

MOLECULAR DETECTION OF SARS-COV-2 INFECTION IN FFPE SAMPLES AND HISTOPATHOLOGIC FINDINGS IN FATAL SARS-COV-2 CASES

Citation: Am J Clin Pathol. 2020 May 26:aqaa091. doi: 10.1093/ajcp/aqaa091. Online ahead of print.

Level of Evidence: Other

BLUF

Post-mortem exam of two patients who died from COVID-19 complicated by acute respiratory distress conducted at Case Western Reserve University found high levels of SARS-CoV-2 RNA in the lungs, bronchi, lymph nodes, and spleen along with wide-spread alveolar damage in both patients. SARS-CoV-2 RNA was detected from tissue in formalin-fixed paraffin-embedded (FFPE) blocks by real-time RT-PCR. Leftover extracted RNA was successfully used for viral sequencing. The authors conclude that SARS-CoV-2 RNA analysis from FFPE blocks submitted at autopsy can help both determine tissue damage through detection of viral RNA as well as help better understand the epidemiology of the virus through retrospective sequencing to determine viral entry into and course through a population.

ABSTRACT

OBJECTIVES: To report methods and findings of 2 autopsies with molecular evaluation of severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) positive individuals.

METHODS: Postmortem examination was completed following Centers for Disease Control and Prevention public guidelines. Numerous formalin-fixed paraffin-embedded (FFPE) tissue types from each case were surveyed for SARS-CoV-2 RNA by quantitative reverse transcription polymerase chain reaction (qRT-PCR). SARS-CoV-2 viral genome was sequenced by next-generation sequencing (NGS) from FFPE lung tissue blocks.

RESULTS: Postmortem examinations revealed diffuse alveolar damage, while no viral-associated hepatic, cardiac, or renal damage was observed. Viral RNA was detected in lungs, bronchi, lymph nodes, and spleen in both cases using qRT-PCR method. RNA sequencing using NGS in case 1 revealed mutations most consistent with Western European Clade A2a with ORF1a L3606F mutation.

CONCLUSIONS: SARS-CoV-2 testing and viral sequencing can be performed from FFPE tissue. Detection and sequencing of SARS-CoV-2 in combination with morphological findings from postmortem tissue examination can aid in gaining a better understanding of the virus's pathophysiologic effects on human health.

ROLE OF BIOLOGICAL DATA MINING AND MACHINE LEARNING TECHNIQUES IN DETECTING AND DIAGNOSING THE NOVEL CORONAVIRUS (COVID-19): A SYSTEMATIC REVIEW

Citation: J Med Syst. 2020 May 25;44(7):122. doi: 10.1007/s10916-020-01582-x.

Level of Evidence: Other

BLUF

This is a systematic review of 8 papers published between 2016 and 2020 that describes the use of artificial intelligence (AI) based on data mining and machine learning algorithms, in detecting and diagnosing different coronaviruses (CoV). The authors note that the lack of studies shows the immediate need for further research in applications of AI in detecting and minimizing the spread of COVID-19.

ABSTRACT

Coronaviruses (CoVs) are a large family of viruses that are common in many animal species, including camels, cattle, cats and bats. Animal CoVs, such as Middle East respiratory syndrome-CoV, severe acute respiratory syndrome (SARS)-CoV, and the new virus named SARS-CoV-2, rarely infect and spread among humans. On January 30, 2020, the International Health Regulations Emergency Committee of the World Health Organisation declared the outbreak of the resulting disease from this new CoV called 'COVID-19', as a 'public health emergency of international concern'. This global pandemic has affected almost the whole planet and caused the death of more than 315,131 patients as of the date of this article. In this context, publishers, journals and researchers are urged to research different domains and stop the spread of this deadly virus. The increasing interest in developing artificial intelligence (AI) applications has addressed several medical problems. However, such applications remain insufficient given the high potential threat posed by this virus to global public health. This systematic review addresses automated AI applications based on data mining and machine learning (ML) algorithms for detecting and diagnosing COVID-19. We aimed to obtain an overview of this critical virus, address the limitations of utilising data mining and ML algorithms, and provide the health sector with the benefits of this technique. We used five databases, namely, IEEE Xplore, Web of Science, PubMed, ScienceDirect and Scopus and performed three sequences of search queries between 2010 and 2020. Accurate exclusion criteria and selection strategy were applied to screen the obtained 1305 articles. Only eight articles were

fully evaluated and included in this review, and this number only emphasised the insufficiency of research in this important area. After analysing all included studies, the results were distributed following the year of publication and the commonly used data mining and ML algorithms. The results found in all papers were discussed to find the gaps in all reviewed papers. Characteristics, such as motivations, challenges, limitations, recommendations, case studies, and features and classes used, were analysed in detail. This study reviewed the state-of-the-art techniques for CoV prediction algorithms based on data mining and ML assessment. The reliability and acceptability of extracted information and datasets from implemented technologies in the literature were considered. Findings showed that researchers must proceed with insights they gain, focus on identifying solutions for CoV problems, and introduce new improvements. The growing emphasis on data mining and ML techniques in medical fields can provide the right environment for change and improvement.

SYMPTOMS AND CLINICAL PRESENTATION

PREDICTIVE SYMPTOMS AND COMORBIDITIES FOR SEVERE COVID-19 AND INTENSIVE CARE UNIT ADMISSION: A SYSTEMATIC REVIEW AND META-ANALYSIS

Citation: Int J Public Health. 2020 May 25. doi: 10.1007/s00038-020-01390-7. Online ahead of print.

Level of Evidence: 2

BLUF

A systematic review and meta-analysis of seven studies totaling 1,813 COVID-19 patients was designed to investigate symptoms and comorbidities predictive of severe disease and intensive care unit (ICU) admission. It was determined that dyspnea was the only symptom predictive of severe disease, but a history of chronic obstructive pulmonary disease (COPD), cardiovascular disease and hypertension elevated a patient's risk for severe illness.

ABSTRACT

OBJECTIVES: COVID-19 has a varied clinical presentation. Elderly patients with comorbidities are more vulnerable to severe disease. This study identifies specific symptoms and comorbidities predicting severe COVID-19 and intensive care unit (ICU) admission.

METHODS: A literature search identified studies indexed in MEDLINE, EMBASE and Global Health before 5th March 2020. Two reviewers independently screened the literature and extracted data. Quality appraisal was performed using STROBE criteria. Random effects meta-analysis identified symptoms and comorbidities associated with severe COVID-19 or ICU admission.

RESULTS: Seven studies (including 1813 COVID-19 patients) were included. ICU patients were older (62.4 years) than non-ICU (46 years), with a greater proportion of males. Dyspnoea was the only symptom predictive for severe disease (p OR 3.70, 95% CI 1.83-7.46) and ICU admission (p OR 6.55, 95% CI 4.28-10.0). COPD was the strongest predictive comorbidity for severe disease (p OR 6.42, 95% CI 2.44-16.9) and ICU admission (p OR 17.8, 95% CI 6.56-48.2), followed by cardiovascular disease and hypertension.

CONCLUSIONS: Dyspnoea was the only symptom predictive for severe COVID-19 and ICU admission. Patients with COPD, cardiovascular disease and hypertension were at higher risk of severe illness and ICU admission.

FIGURES

	ICU admission (N = 116)	Non-ICU admission (N = 1162)	<i>p</i> value	Severe disease (N = 315)	Non-severe disease (N = 1319)	<i>p</i> value
Median age (years) ^a	62.4	46.0	—	49.4	41.7	—
Male (%)	67.2	57.1	0.04	57.5	55.1	0.46

ICU intensive care unit

^aMedian unavailable for Li et al. (2020b) and Xu et al. (2020)

Table 2. Total population from included studies. China (2020)

ADULTS

LONG-TERM CLINICAL OUTCOMES IN SURVIVORS OF SEVERE ACUTE RESPIRATORY SYNDROME AND MIDDLE EAST RESPIRATORY SYNDROME CORONAVIRUS OUTBREAKS AFTER HOSPITALISATION OR ICU ADMISSION: A SYSTEMATIC REVIEW AND META-ANALYSIS

Citation: J Rehabil Med. 2020 May 25. doi: 10.2340/16501977-2694. Online ahead of print.

Level of Evidence: 2

BLUF

This article details a meta-analysis of 28 studies investigating long-term clinical complications, including lung function, exercise tolerance, and mental health outcomes of hospitalized survivors of SARS and MERS coronavirus in order to inform physicians about potential complications for COVID-19 survivors. The results of the study "highlighted that the health-related quality of life (HRQoL), measured using SF-36, is considerably reduced in CoV survivors at 6 months postinfection, shows only slight improvement beyond 6 months and remains below normal population and those with chronic conditions" (figure 1). Additionally, the authors found that a third of coronavirus survivors developed psychological conditions such as post-traumatic stress disorder (PTSD), depression, and anxiety beyond six months (figure 2), suggesting that non-physical impairment may be important for physicians to recognize.

ABSTRACT

OBJECTIVE: To determine long-term clinical outcomes in survivors of severe acute respiratory syndrome (SARS) and Middle East respiratory syndrome (MERS) coronavirus infections after hospitalization or intensive care unit admission. **DATA SOURCES:** Ovid MEDLINE, EMBASE, CINAHL Plus, and PsycINFO were searched.

STUDY SELECTION: Original studies reporting clinical outcomes of adult SARS and MERS survivors 3 months after admission or 2 months after discharge were included.

DATA EXTRACTION: Studies were graded using the Oxford Centre for Evidence-Based Medicine 2009 Level of Evidence Tool. Meta-analysis was used to derive pooled estimates for prevalence/severity of outcomes up to 6 months, and beyond.

DATA SYNTHESIS: Of 1,169 identified studies, 28 were included in the analysis. Pooled analysis revealed that common complications up to 6 months were: impaired diffusing capacity for carbon monoxide (prevalence 27%, 95% confidence interval (CI) 15-45%); and reduced exercise capacity ((mean 6-min walking distance 461 m, CI 450-473 m). The prevalences of post-traumatic stress disorder (39%, 95% CI 31-47%), depression (33%, 95% CI 20-50%) and anxiety (30%, 95% CI 10-61%) beyond 6 months were considerable. Low scores on Short-Form 36 were identified at 6 months and beyond.

CONCLUSION: Lung function abnormalities, psychological impairment and reduced exercise capacity were common in SARS and MERS survivors. Clinicians should anticipate and investigate similar long-term outcomes in COVID-19 survivors.

FIGURES

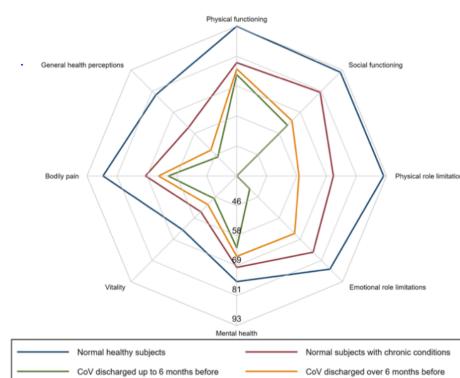
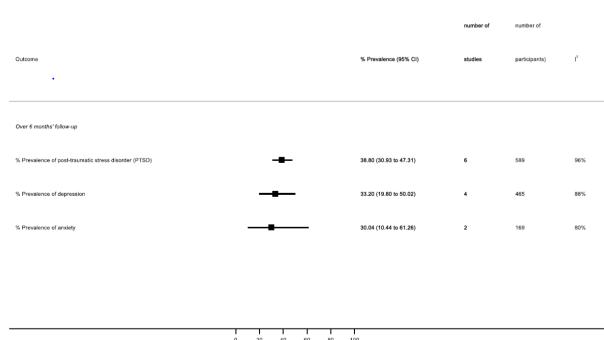


Figure 1. Radar plot showing pooled estimate of mean scores for different domains of SF-36 in CoV survivors up to 6 months (green) and over 6 months (orange) compared to healthy individuals (blue) and subjects with chronic conditions (red).



UNDERSTANDING THE PATHOLOGY

COVID-19 INDUCED SUPERIMPOSED BACTERIAL INFECTION

Citation: J Biomol Struct Dyn. 2020 May 25:1-10. doi: 10.1080/07391102.2020.1772110. Online ahead of print.

Level of Evidence: Other

BLUF

Researchers from Qatar and Lebanon conduct a literature review in May 2020 on internationally published literature pertaining to the pathophysiology and risk factors of secondary bacterial infection in COVID-19 patients. They make a case for the initiation of empirical antimicrobial treatment to improve prognosis, with emphasis on the use of sensitive antibiotics (pending culture and sensitivity report) and rapid withdrawal once the secondary infection is ruled out/resolved in order to prevent resistance and overuse.

ABSTRACT

Viral respiratory infections are very common and they are frequently eliminated from the body without any detrimental consequences. Secondary serious bacterial infection has been an apprehension expressed by health care providers, and this fear has been exacerbated in the era of Covid-19. Several published studies have shown an association between Covid-19 illness and secondary bacterial infection. However, the proposed mechanism by which a virus can develop a secondary bacterial infection is not well delineated. The aim of this commentary is to update the current evidence of the risk of bacterial infection in patients with Covid-19. We present several clinical studies related to the topic as well as a brief review of the potential pathophysiology of secondary infections that could present with Covid-19.

FIGURES

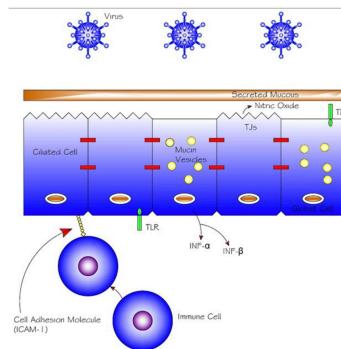


Figure 1. Model depicting the factors protecting respiratory epithelium

LIVER INJURY IN COVID-19: THE CURRENT EVIDENCE

Citation: United European Gastroenterol J. 2020 Jun;8(5):509-519. doi: 10.1177/2050640620924157.

Level of Evidence: Other

BLUF

This literature review summarizes the pathophysiology of liver injury in patients with COVID-19. Authors propose that severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) may cause cytopathic damage to hepatocytes by inducing cellular stress, cytokine dysregulation, or disrupting essential functions of cholangiocytes that express angiotensin-2 converting enzyme (ACE2). Understanding possible mechanisms of liver injury has important implications for optimizing outcomes in patients diagnosed with COVID-19, especially since the degree of liver dysfunction has been correlated with disease severity.

SUMMARY

"Key points:

1. Altered liver function tests are reported in up to half of the patients with COVID-19 infection.
2. Disease severity, pre-existing liver disease and older age present a risk for liver injury.
3. Drug-induced liver injury is an important consideration in patients with COVID-19.
4. Hepatotoxic antiviral medications require careful monitoring of adverse effects.
5. SARS-CoV-2 may directly bind to ACE2 positive cholangiocytes and can cause hepatic injury.
6. Activation of the immune system and 'cytokine storm' may contribute to an immune-mediated process of

hepatic injury in COVID-19.

7. The control of cytokine dysregulation at an early stage could be beneficial to curb the disease progression."

ABSTRACT

Patients with novel coronavirus disease 2019 (COVID-19) experience various degrees of liver function abnormalities. Liver injury requires extensive work-up and continuous surveillance and can be multifactorial and heterogeneous in nature. In the context of COVID-19, clinicians will have to determine whether liver injury is related to an underlying liver disease, drugs used for the treatment of COVID-19, direct effect of the virus, or a complicated disease course. Recent studies proposed several theories on potential mechanisms of liver injury in these patients. This review summarizes current evidence related to hepatobiliary complications in COVID-19, provides an overview of the available case series and critically elucidates the proposed mechanisms and provides recommendations for clinicians.

FIGURES

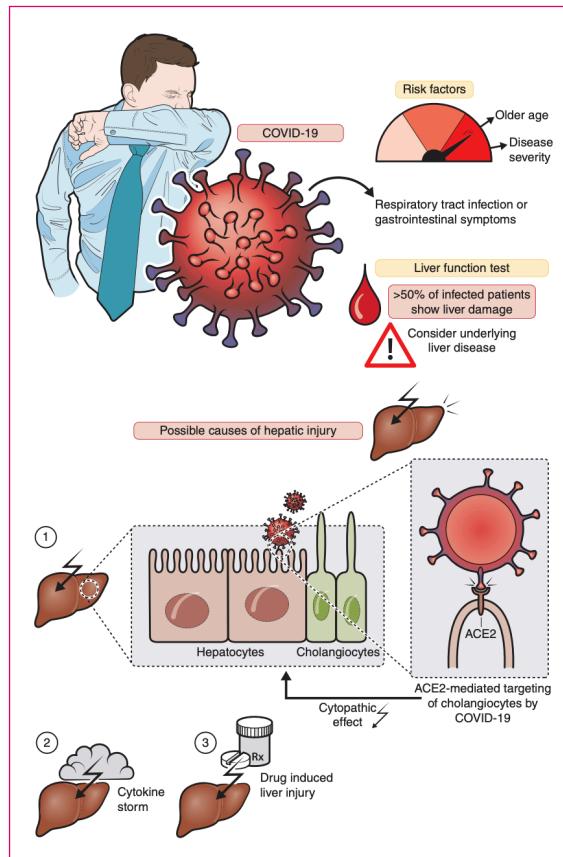


Figure 1. Clinical characteristics and pathophysiology of liver injury from COVID-19.
ACE2: angiotensin-2 converting enzyme

DOES SARS-COV-2 INFECTION CAUSE CHRONIC NEUROLOGICAL COMPLICATIONS?

Citation: Geroscience. 2020 May 25. doi: 10.1007/s11357-020-00207-y. Online ahead of print.

Level of Evidence: Other

BLUF

This article details the "potential long-term implications of SARS-CoV-2 infection in relation to accelerated brain aging, neurovascular coupling, and age-related neurodegenerative disorders." The authors hypothesize that "SARS-CoV-2 can infect endothelial cells expressing ACE2 (angiotensin converting enzyme 2) potentially leading to further deterioration of this integral architecture" and resulting in accelerated brain aging, hypoperfusion, and disruption of neurovascular coupling. Long-term neurological care may be indicated in older adults following severe SARS-CoV-2 infection.

ABSTRACT

The current pandemic caused by severe acute respiratory syndrome coronavirus (SARS-CoV)-2 has created an unparalleled health crisis. Besides the acute respiratory infection, CoVs are neuroinvasive causing additional inflammation and

neurodegeneration. This is likely also true of SARS-CoV-2 given reports of neurological manifestations in coronavirus disease 2019 (COVID-19) positive patients. Older adults > 65 years of age constitute a high-risk group prone to severe infection and death. Despite the higher mortality rate, a majority of cases are expected to recover and survive from this viral outbreak. But, the long-term consequences of SARS-CoV-2 neuroinfection are unknown. We discuss these potential chronic changes to the central nervous system (CNS) in relation to accelerated brain aging and age-related neurodegenerative disorders.

TRANSMISSION & PREVENTION

SARS-COV-2 VIRULENCE: INTERPLAY OF FLOATING VIRUS-LADEN PARTICLES, CLIMATE, AND HUMANS

Citation: Adv Biosyst. 2020 May 25:e2000105. doi: 10.1002/adbi.202000105. Online ahead of print.

Level of Evidence: Other

BLUF

This review discusses literature which indicates cold and dry weather are most conducive to transmission of SARS-CoV-2, as it remains both suspended in the air and viable for longer in this climate. The author provides his opinion that the public should employ extra safety measures such as wearing a mask not only geographical regions with cold and dry climates, but in cold and dry indoor spaces such as the freezer aisle in grocery stores.

ABSTRACT

With the emergence of COVID-19, it is important to address the possible scenarios of SARS-CoV-2 virulence. Although several researchers have addressed the possible mechanisms of enveloped virus transfection, for example, influenza, here, the relationship between exhaled virus laden-particles, the climate, and transfection probability is discussed by interpreting the findings of prior studies. Importantly, the higher probability of viral transfection in cold and dry public spaces such as near cold shelves of groceries is illustrated. Thus, additional protective measures in such spaces are recommended.

FIGURES

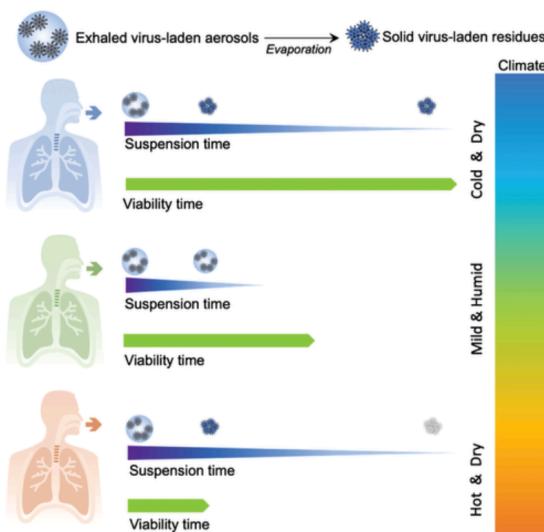


Figure 1: The effect of climate on virulence of enveloped viruses. In cold climate, enveloped viruses are viable for several hours, while the low humidity of cold climate aids exhaled virus-laden aerosols turn to tiny solid residues that can remain suspended in air for several hours and might travel within air flow. In mild and humid climate, most of the virus-laden aerosols precipitate faster since the evaporation is slower. Also, a relatively shorter viability compared to cold climate is expected in mild temperature. Hot and dry climate, although aids faster formation of solid residues, but high temperature destabilizes the enveloped viruses and shortens their viable period.

SEVENTY-TWO HOURS, TARGETING TIME FROM FIRST COVID-19 SYMPTOM ONSET TO HOSPITALIZATION

Citation: J Korean Med Sci. 2020 May 25;35(20):e192. doi: 10.3346/jkms.2020.35.e192.

Level of Evidence: Other

BLUF

This commentary by authors in Korea breaks down Seoul's response to the COVID-19 pandemic. The low fatality rates were attributed to their response team's (SMG COVID-19 Rapid Response Team, SCoRR) emphasis on limiting the time frame for their detection, testing, results, and hospitalization model (D-T-R-H).

FIGURES

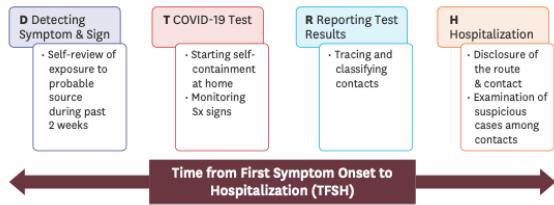


Figure 1. D-T-R-H process.

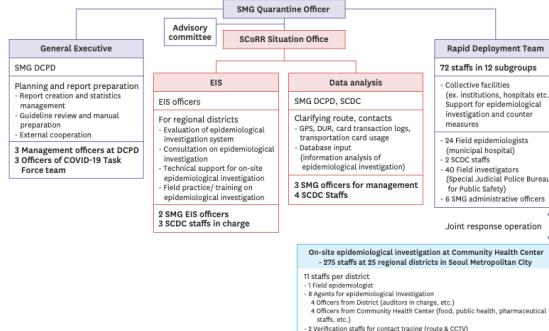


Figure 2. The Organizational Chart of SCoRR Team.

PREVENTION IN THE COMMUNITY

FACE MASK-INDUCED ITCH: A SELF-QUESTIONNAIRE STUDY OF 2,315 RESPONDERS DURING THE COVID-19 PANDEMIC

Citation: Acta Derm Venereol. 2020 May 25. doi: 10.2340/00015555-3536. Online ahead of print.

Level of Evidence: 3

BLUF

An online survey of 2307 students conducted by researchers in Poland between April 12 and April 14, 2020 found that 60.4% had recently worn masks, 19.6% of whom reported a facial itch associated with mask-wearing. The majority of people reporting facial itch classified it as moderate intensity (figure 1) and only ~30% did something to relieve the itch, which the researchers suggest could reduce the effectiveness of masks. Factors predisposing respondents to facial itch include history of dermatologic conditions, wearing a mask for more than 5 hours, and wearing a full- or half-face respirator (tables I & II).

ABSTRACT

Little is known about itch related to the use of face masks. This internet survey study investigated the prevalence, intensity and clinical characteristics of itch related to the use of face masks by the general public during the COVID-19 pandemic. A total of 2,315 replies were received, of which 2,307 were included in the final analysis. Of the respondents, 1,393 (60.4%) reported using face masks during the previous week, and, of these, 273 (19.6%) participants reported having itch. Subjects who reported sensitive skin and atopic predisposition, and those with facial dermatoses (acne, atopic dermatitis or seborrhoeic dermatitis) were at significantly higher risk of itch development. The high-est rating of itch for the whole group on the Itch Numeral Rating Scale was 4.07 +- 2.06 (itch of moderate intensity). Responders who wore masks for longer periods more frequently reported itch. Almost 30% of itchy subjects reported scratching their face without removing the mask, or after removing the mask and then scratching. Wearing face masks is linked to development of itch, and scratching can lead to incorrect use of face masks, resulting in reduced protection.

FIGURES

Table I. Medical conditions affecting itch development (as an effect) during use of face masks

Variable	Coeff.	SE	p-value	OR (95% CI)
Sensitive skin	1.2246	0.1634	0.0000	3.4029 (2.4706, 4.6870)
Atopic predisposition	0.8125	0.1368	0.0000	2.2536 (1.7234, 2.9469)
Atopic dermatitis	0.6548	0.1815	0.0003	1.9248 (1.3485, 2.7473)
Acne	0.2583	0.0701	0.0002	1.2947 (1.1285, 1.4854)
Seborrhoeic dermatitis	0.2599	0.0782	0.0009	1.2969 (1.1125, 1.5117)
Diabetes mellitus	0.0877	0.0967	0.3644	1.0917 (0.9032, 1.3195)
Thyroiditis	0.0216	0.0325	0.5048	1.0219 (0.9589, 1.0890)
Healthy subjects	-0.0754	0.0172	0.0000	0.9274 (0.8967, 0.9592)

Coeff.: coefficient; SE: standard error; OR: odds ratio; CI: confidence interval.
Significant values are shown in bold.

Table 1. Medical conditions affecting itch development (as an effect) during use of face masks

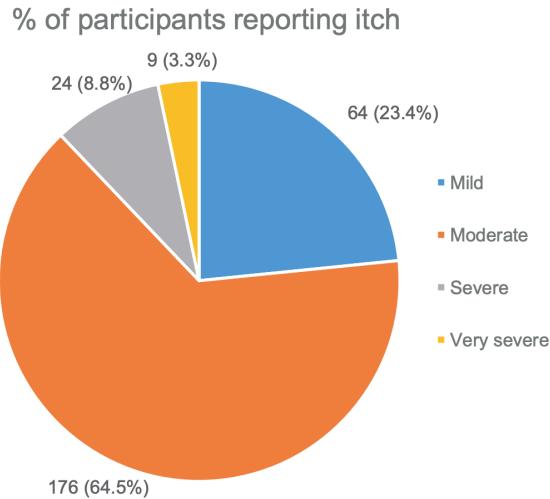


Fig. 1. Intensity of face-mask-induced itch (n=273).

Table II. Type, duration of wearing, and decontamination of face masks in relation to development of itch

	Total	Itch (n = 273)	No itch (n = 1,120)	p-value
Number of face masks types used* (% of participants in particular sub-group)				
Three layers surgical mask	855 (54.2)	161 (59.0)	594 (53.0)	0.08
Cloth masks	891 (64.0)	179 (65.6)	712 (63.6)	0.54
Respirators (N95 + FFP)	257 (18.4)	60 (22.0)	197 (17.6)	0.09
Half-face or semi-enclosed respirator	75 (5.3)	15 (5.5)	60 (5.4)	<0.001
Full-face respirator	8 (0.4)	5 (1.8)	3 (0.3)	0.02
Duration of face masks used per day; number of participants (%)				
Up to 1 h	708 (50.0)	110 (40.3)	598 (53.4)	<0.001
Up to 2 h	1,171 (84.1)	201 (73.6)	970 (86.6)	<0.0001
Up to 4 h	1,290 (92.6)	232 (85.0)	1,058 (94.5)	<0.0001
More than 5 h	56 (4.0)	21 (7.7)	35 (3.1)	<0.001
Number of participants decontaminating their masks (%)	1,026 (73.6)	219 (78.9)	816 (72.9)	0.21

*Some of participants were using several types of face masks.

FFP: filtering face piece. Significant values are shown in bold.

Table 2. Type, duration of wearing, and decontamination of face masks in relation to development of itch

MANAGEMENT

EARLY OUTPATIENT TREATMENT OF SYMPTOMATIC, HIGH-RISK COVID-19 PATIENTS THAT SHOULD BE RAMPED-UP IMMEDIATELY AS KEY TO THE PANDEMIC CRISIS

Citation: Am J Epidemiol. 2020 May 27:kwaa093. doi: 10.1093/aje/kwaa093. Online ahead of print.

Level of Evidence: Other

BLUF

This literature review from an author affiliated with the Yale School of Public Health in New Haven, Connecticut presents evidence supporting the use of hydroxychloroquine + azithromycin for COVID-19 treatment in high risk outpatient populations before disease progression. Advocating that the benefits outweigh the side effects in the outpatient setting, the author argues for the immediate promotion of this drug combination to treat COVID-19 before patients require hospitalization.

ABSTRACT

More than 1.6 million Americans have been infected with SARS-CoV-2 and >10 times that number carry antibodies to it. High-risk patients presenting with progressing symptomatic disease have only hospitalization treatment with its high mortality. An outpatient treatment that prevents hospitalization is desperately needed. Two candidate medications have been widely discussed: remdesivir, and hydroxychloroquine+azithromycin. Remdesivir has shown mild effectiveness in hospitalized inpatients, but no trials have been registered in outpatients. Hydroxychloroquine+azithromycin has been widely misrepresented in both clinical reports and public media, and outpatient trials results are not expected until September. Early outpatient illness is very different than later hospitalized florid disease and the treatments differ. Evidence about use of hydroxychloroquine alone, or of hydroxychloroquine+azithromycin in inpatients, is irrelevant concerning efficacy of the pair in early high-risk outpatient disease. Five studies, including two controlled clinical trials, have demonstrated significant major outpatient treatment efficacy. Hydroxychloroquine+azithromycin has been used as standard-of-care in more than 300,000 older adults with multicomorbidities, with estimated proportion diagnosed with cardiac arrhythmias attributable to the medications 47/100,000 users, of which estimated mortality is <20%, 9/100,000 users, compared to the 10,000 Americans now dying each week. These medications need to be widely available and promoted immediately for physicians to prescribe.

ACUTE CARE

THE ASSOCIATION OF LOW SERUM ALBUMIN LEVEL WITH SEVERE COVID-19: A SYSTEMATIC REVIEW AND META-ANALYSIS

Citation: Crit Care. 2020 May 26;24(1):255. doi: 10.1186/s13054-020-02995-3.

Level of Evidence: 3

BLUF

A systematic review and meta-analysis conducted by researchers from the University of Toledo (11 studies, n=910, mean age 47.6 ± 8.2 years, 47.0% females) found a link between hypoalbuminemia and COVID-19. Specifically, weighted mean serum albumin on admission for severe COVID-19 [3.50 g/dL (CI 3.26–3.74 g/dL)] was significantly lower than non-severe COVID-19 [4.05 g/dL (CI 3.82–4.27 g/dL)] ($p<0.001$). Based on these results, the authors suggest low serum albumin may aid recognition of severe disease.

FIGURES

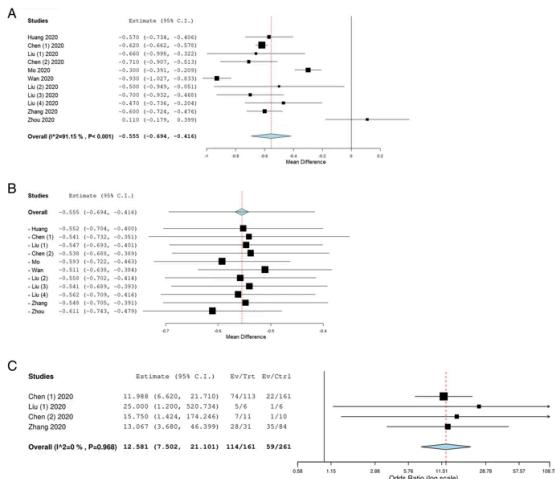
Fig. 1

Figure 1. Forest plot demonstrating (a) meta-analysis comparing mean serum albumin, (b) leave-one-out meta-analysis comparing mean serum albumin, and (c) meta-analysis comparing hypoalbuminemia status for patients in severe vs non-severe group

HYPONATREMIA, IL-6, AND SARS-COV-2 (COVID-19) INFECTION: MAY ALL FIT TOGETHER?

Citation: J Endocrinol Invest. 2020 May 25. doi: 10.1007/s40618-020-01301-w. Online ahead of print.

Level of Evidence: 3

BLUF

Given the possible role of IL-6 in COVID-19, a group of Italian physicians performed a retrospective analysis of COVID-19 patients ($n=29$) to investigate if hyponatremia may serve as a marker for poor prognosis. They report a positive association ($p=0.031$) between hyponatremia and severe outcome (ICU admission, ventilation, death) in the high-IL-6 group, and observed increased sodium levels in severe patients with high IL-6 ($n=8$, Figure 1) 48 hours post-tocilizumab treatment, prompting the authors to suggest a mechanism of IL-6-induced vasopressin release that results in hyponatremia.

SUMMARY

Additional Information: 29 patients were included from an initial set of 56. Exclusion criteria include pregnancy ($n=1$), diarrhea ($n=4$), acute renal failure ($n=8$), and malignancy ($n=10$). Two cohorts were created based on IL-6 levels: Group 1 ≤ 10 pg/mL (upper normal limit) and Group 2 ≥ 10 pg/mL.

FIGURES

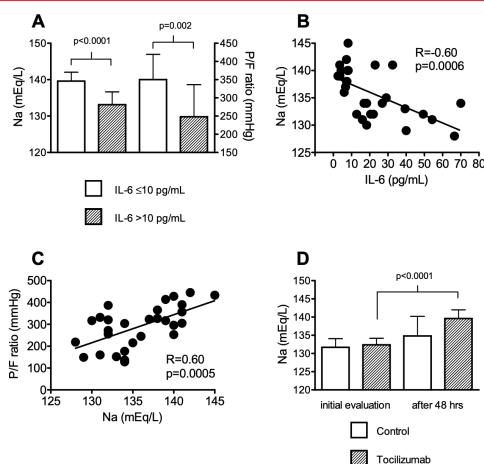


Figure 1. A. Serum sodium concentration (Na) and PaO₂/FiO₂ ratio (P/F ratio) at admission in patients with serum IL-6 level ≤ 10 and ≥ 10 pg/mL; B. Inverse correlation between serum IL-6 level (IL-6) and serum sodium concentration (Na); C. Direct correlation between serum sodium concentration (Na) and PaO₂/FiO₂ ratio (P/F ratio) at admission; D. Comparison between serum sodium concentration (Na) at admission and after 48 hours in patients with hyponatremia, treated or not (control) with tocilizumab

SUCCESSFUL RECOVERY FROM SEVERE COVID-19 PNEUMONIA AFTER KIDNEY TRANSPLANTATION: THE INTERPLAY BETWEEN IMMUNOSUPPRESSION AND NOVEL THERAPY INCLUDING TOCILIZUMAB

Citation: Transpl Infect Dis. 2020 May 25:e13334. doi: 10.1111/tid.13334. Online ahead of print.

Level of Evidence: Other

BLUF

A case report by physicians in Milan, Italy describe a 51-year-old woman with a history of kidney transplantation on immunosuppressants who was admitted to the hospital on March 10, 2020 for COVID-19 confirmed via RT-PCR. She was admitted to the intensive care unit on day 14, underwent mechanical ventilation for a total of ten days, and was treated with lopinavir/ritonavir, hydroxychloroquine, empiric antibiotic therapy, prednisolone, and tocilizumab. She was discharged on day 50 in stable condition, suggesting that immunosuppressant treatment protocols such as this may be tailored in an effective way to combat COVID-19 in immunocompromised patients.

ABSTRACT

Although immunosuppressed patients may be more prone to SARS-CoV-2 infection with atypical presentation, long-term immunosuppression therapy may provide some sort of protection for severe clinical complications of COVID-19. The interaction between immunosuppression and new antiviral drugs in the treatment of transplanted patients contracting COVID-19 has not yet been fully investigated. Moreover, data regarding the optimal management of these patients are still very limited. We report a case of the successful recovery from severe COVID-19 of a kidney-transplanted patient treated with hydroxychloroquine, lopinavir/ritonavir, steroid and tocilizumab.

FIGURES

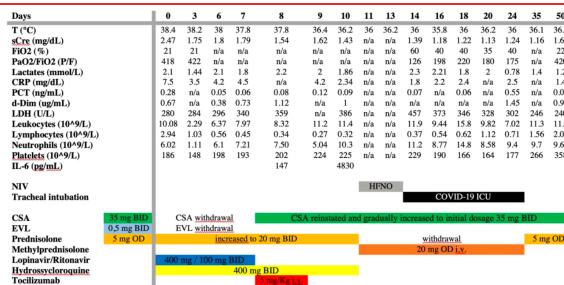
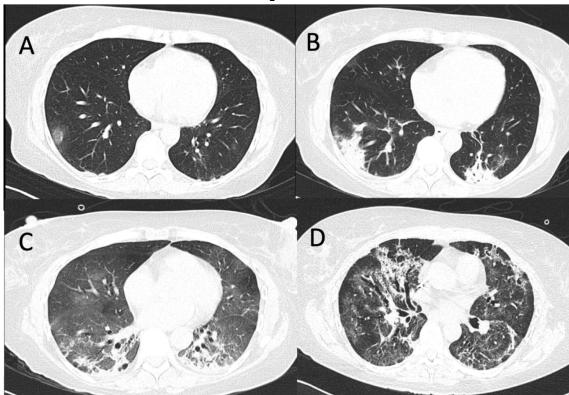


Figure 2. Patient's laboratory tests and main clinical events.



DIAGNOSTIC RADIOLOGY

CHEST CT-BASED DIFFERENTIAL DIAGNOSIS OF 28 PATIENTS WITH SUSPECTED CORONA VIRUS DISEASE 2019 (COVID-19)

Citation: Br J Radiol. 2020 May 26:20200243. doi: 10.1259/bjr.20200243. Online ahead of print.

Level of Evidence: 4

BLUF

A retrospective study conducted by the Departments of Radiology and Infectious Disease at the Third Affiliated Hospital of Sun Yat-sen in China from January 22 - February 6, 2020 found that although initially promising, chest CT scans could not

accurately distinguish COVID-19 positive patients from negative patients who were initially suspected of having the disease (Figures 1, 2, and 4). These findings suggest that chest CT's are unlikely a reliable way of diagnosing COVID-19 due to a lack of specificity.

ABSTRACT

OBJECTIVES: The chest CT findings that can distinguish patients with corona virus disease 2019 (COVID-19) from those with clinically suspected COVID-19 but subsequently found to be COVID-19 negative have not previously been described in detail. The purpose of this study was to determine the distinctions among patients with COVID-19 by comparing the imaging findings of patients with suspected confirmed COVID-19 and those of patients initially suspected to have COVID-19 who were ultimately negative for the disease.

METHODS: 28 isolated suspected in-patients with COVID-19 were enrolled in this retrospective study from January 22, 2020, to February 6, 2020. 12 patients were confirmed to have positive severe acute respiratory syndrome corona virus 2 (SARS-CoV-2) RNA results, and 16 patients had negative results. The thin-section CT imaging findings and clinical and laboratory data of all the patients were evaluated.

RESULTS: There were no significant differences between the 12 confirmed COVID-19 (SARS-CoV-2-positive) patients and 16 SARS-CoV-2-negative patients in epidemiology and most of the clinical features or laboratory data. The CT images showed that the incidence of pure/mixed ground-glass opacities (GGOs) was not different between COVID-19 and SARS-CoV-2-negative patients [9/12 (75.0%) vs 10/16 (62.5%), p = 0.687], but pure/mixed GGOs in the peripheral were more common in patients with COVID-19 [11/12 (91.7%) vs 6/16 (37.5%), p = 0.006]. There were no significant differences in the number of lesions, bilateral lung involvement, large irregular/patchy opacities, rounded opacities, linear opacities, crazy-paving patterns, halo signs, interlobular septal thickening or air bronchograms.

CONCLUSIONS: Although peripheral pure/mixed GGOs on CT may help distinguish patients with COVID-19 from clinically suspected but negative patients, CT cannot replace RT-PCR testing.

ADVANCES IN KNOWLEDGE: Peripheral pure/mixed GGOs on-chest CT findings can be helpful in distinguishing patients with COVID-19 from those with clinically suspected COVID-19 but subsequently found to be COVID-19 negative.

FIGURES

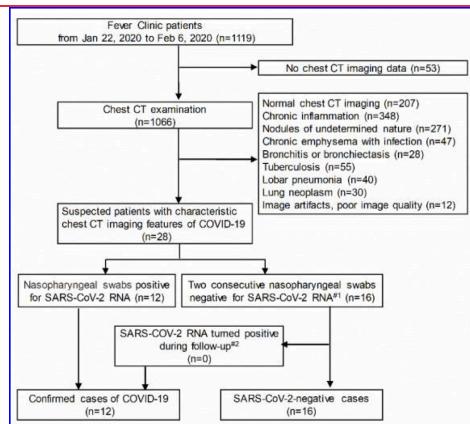


Figure 1. Flow chart of the study population. Note: #1 the interval between two times was more than 24 hours; #2 the last follow up on February 20, 2020; CT= computed tomography; COVID-19= coronavirus disease 2019; SARS-CoV-2= severe acute respiratory syndrome coronavirus 2.

CRITICAL CARE

EVALUATION OF FLUID RESPONSIVENESS DURING COVID-19 PANDEMIC: WHAT ARE THE REMAINING CHOICES?

Citation: J Anesth. 2020 May 25. doi: 10.1007/s00540-020-02801-y. Online ahead of print.

Level of Evidence: Other

BLUF

Two Egyptian anesthesiologists perform a literature review to identify the increased role of fluid responsiveness in recent guidelines, impact of limited resources, various disease phenotypes, and potential role of right-ventricular failure in challenges with fluid responsiveness.

SUMMARY

To assess the evaluation of fluid responsiveness in COVID-19 patients, the authors considered the accuracy of the test in ARDS patients, cost, ease of use by physicians, validity of the test in prone positioned patients, and ability to conduct the test with minimal patient contact. A summary of the recommended the approaches is included in Figure 1.

ABSTRACT

Non-protocolized fluid administration in critically ill patients, especially those with acute respiratory distress syndrome (ARDS), is associated with poor outcomes. Therefore, fluid administration in patients with Coronavirus disease (COVID-19) should be properly guided. Choice of an index to guide fluid management during a pandemic with mass patient admissions carries an additional challenge due to the relatively limited resources. An ideal test for assessment of fluid responsiveness during this pandemic should be accurate in ARDS patients, economic, easy to interpret by junior staff, valid in patients in the prone position and performed with minimal contact with the patient to avoid spread of infection. Patients with COVID-19 ARDS are divided into two phenotypes (L phenotype and H phenotype) according to their lung compliance. Selection of the proper index for fluid responsiveness varies according to the patient phenotype. Heart-lung interaction methods can be used only in patients with L phenotype ARDS. Real-time measures, such a pulse pressure variation, are more appropriate for use during this pandemic compared to ultrasound-derived measures, because contamination of the ultrasound machine can spread infection. Preload challenge tests are suitable for use in all COVID-19 patients. Passive leg raising test is relatively better than mini-fluid challenge test, because it can be repeated without overloading the patient with fluids. Trendelenburg maneuver is a suitable alternative to the passive leg raising test in patients with prone position. If a cardiac output monitor was not available, the response to the passive leg raising test could be traced by measurement of the pulse pressure or the perfusion index. Preload modifying maneuvers, such as tidal volume challenge, can also be used in COVID-19 patients, especially if the patient was in the gray zone of other dynamic tests. However, the preload modifying maneuvers were not extensively evaluated outside the operating room. Selection of the proper test would vary according to the level of healthcare in the country and the load of admissions which might be overwhelming. Evaluation of the volume status should be comprehensive; therefore, the presence of signs of volume overload such as lower limb edema, lung edema, and severe hypoxemia should be considered beside the usual indices for fluid responsiveness.

FIGURES

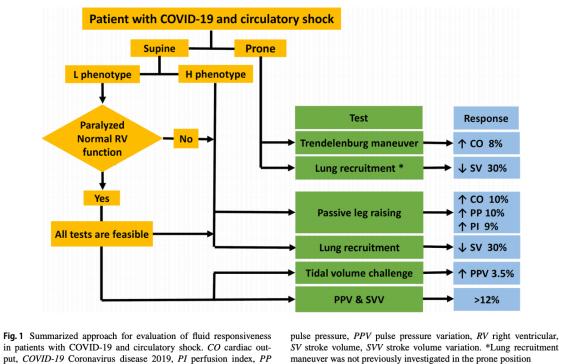


Figure 1. Summarized approach for evaluation of fluid responsiveness in patients with COVID-19 and circulatory shock. CO cardiac output, COVID-19 Coronavirus disease 2019, PI perfusion index, PP pulse pressure, PPV pulse pressure variation, RV right ventricular, SV stroke volume, SVV stroke volume variation. *Lung recruitment maneuver was not previously investigated in the prone position

NEUROLOGY

NEUROLOGICAL MANIFESTATIONS OF COVID-19: A REVIEW OF WHAT WE KNOW SO FAR

Citation: J Neurol. 2020 May 26. doi: 10.1007/s00415-020-09939-5. Online ahead of print.

Level of Evidence: Other

BLUF

This literature review summarizes the neurological manifestations of COVID-19 (including encephalitis-meningitis, encephalopathy, cerebrovascular disease, olfactory and gustatory disorders, and Guillain-Barré syndrome). The author notes the association of these manifestations with critical disease, and advocates for the prompt diagnosis and immediate management of COVID-19 patients who may present with or develop these neurological manifestations.

CARDIOLOGY

COVID-19: STROKE ADMISSIONS, EMERGENCY DEPARTMENT VISITS, AND PREVENTION CLINIC REFERRALS

Citation: Can J Neurol Sci. 2020 May 26:1-10. doi: 10.1017/cjn.2020.101. Online ahead of print.

Level of Evidence: 3

BLUF

Researchers from Ontario, Canada conduct an epidemiological analysis from Feb 3 - April 26, 2020 and found that the pandemic caused a 20% reduction in the number of code strokes invoked, no change in stroke admissions, and a 22% decrease in urgent stroke prevention clinic referrals when compared to 2019 data. The authors attribute these findings to patient-related factors such as fear of being exposed to SARS-CoV-2 and government lockdown. They call for improving public awareness about the importance of urgent medical attention in improving outcomes of stroke patients.

ABSTRACT

We assessed the impact of the coronavirus disease 19 (COVID-19) pandemic on code stroke activations in the ED, stroke unit admissions, and referrals to the stroke prevention clinic at London's regional stroke center, serving a population of 1.8 million in Ontario, Canada. We found a 20% drop in the number of code strokes in 2020 compared to 2019, immediately after the first cases of COVID-19 were officially confirmed. There were no changes in the number of stroke admissions and there was a 22% decrease in the number of clinic referrals, only after the provincial lockdown. Our findings suggest that the decrease in code strokes was mainly driven by patient-related factors such as fear to be exposed to the SARS-CoV-2, while the reduction in clinic referrals was largely explained by hospital policies and the Government lockdown.

DO UNDERLYING CARDIOVASCULAR DISEASES HAVE ANY IMPACT ON HOSPITALISED PATIENTS WITH COVID-19?

Citation: Heart. 2020 May 25:heartjnl-2020-316909. doi: 10.1136/heartjnl-2020-316909. Online ahead of print.

Level of Evidence: 4

BLUF

A retrospective case series conducted at Renmin Hospital of Wuhan University in Wuhan, China examined 541 patients with COVID-19 confirmed via RT-PCR and found that the overall mortality of patients with underlying cardiovascular disease (22.2%) was higher than those without cardiovascular disease in the study (9.8%). They further examined differences between patients with and without underlying cardiovascular disease (Table 1), finding that cardiovascular disease was associated with higher patient age, increased disease severity, leukocytosis, and abnormal liver and kidney function. Their findings suggest that thorough examination of cardiovascular health in patients with COVID-19 may aid in determining treatment course and prognosis.

ABSTRACT

OBJECTIVES: An outbreak of the highly contagious severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) has sickened thousands of people in China. The purpose of this study was to explore the early clinical characteristics of COVID-19 patients with cardiovascular disease (CVD). **METHODS:** This is a retrospective analysis of patients with COVID-19 from a single centre. All patients underwent real-time reverse transcription PCR for SARS-CoV-2 on admission. Demographic and clinical factors and laboratory data were reviewed and collected to evaluate for significant associations. **RESULTS:** The study included 541 patients with COVID-19. A total of 144 (26.6%) patients had a history of CVD. The mortality of patients with CVD reached 22.2%, which was higher than that of the overall population of this study (9.8%). Patients with CVD were also more likely to develop liver function abnormality, elevated blood creatinine and lactic dehydrogenase ($p < 0.05$). Symptoms of sputum production were more common in patients with CVD ($p = 0.026$). Lymphocytes, haemoglobin and albumin below the normal range were pervasive in the CVD group ($p < 0.05$). The proportion of critically ill patients in the CVD group (27.8%) was significantly higher than that in the non-CVD group (8.8%). Multivariable logistic regression analysis revealed that CVD (OR: 2.735 (95% CI 1.495 to 5.003), $p = 0.001$) was associated with critical COVID-19 condition, while patients with coronary heart disease were less likely to reach recovery standards (OR: 0.331 (95% CI 0.125 to 0.880), $p = 0.027$). **CONCLUSIONS:** Considering the high prevalence of CVD, a thorough CVD assessment at diagnosis and early intervention are recommended in COVID-19 patients with CVD. Patients with CVD are more vulnerable to deterioration.

FIGURES

Variable	Without CVD (n=397) n (%)	With CVD (n=144) n (%)	P value
Male	183 (46.1)	72 (50.0)	0.437
Age			
Mean (SD)	53.25±16.29	69.66±10.94	<0.001
≤40	105 (26.4)	0 (0)	
40–60	138 (34.8)	30 (20.8)	
60–80	138 (34.8)	90 (62.5)	
>80	16 (4.0)	24 (16.7)	
Fever	316 (79.6)	118 (81.9)	0.626
Fatigue	125 (31.5)	53 (36.8)	0.256
Cough	244 (61.5)	93 (64.6)	0.548
Sputum production	93 (23.4)	48 (33.3)	0.026
Chest congestion	91 (22.9)	39 (27.1)	0.362
Dizziness	13 (3.3)	6 (4.2)	0.603
Headache	13 (3.3)	6 (4.2)	0.603
Dyspnoea	89 (22.4)	41 (28.5)	0.172
Disturbance of consciousness	5 (1.3)	4 (2.8)	0.256
Arthralgia	40 (10.1)	13 (9.0)	0.870
Stomach-ache	2 (0.5)	3 (2.1)	0.120
Diarrhoea	45 (11.3)	18 (12.5)	0.762
Nausea	15 (3.8)	11 (7.6)	0.071
Emesis	7 (1.8)	6 (4.2)	0.118
Leucocytes <3.5×10 ⁹ /L	41 (10.3)	13 (9.0)	0.747
Leucocytes >9.5×10 ⁹ /L	36 (9.1)	32 (22.2)	<0.001
Lymphocytes <1.1×10 ⁹ /L	203 (51.1)	93 (64.6)	0.006
Haemoglobin <115.0 g/L	122 (30.7)	71 (49.3)	<0.001
Albumin <40.0 g/L	277 (69.8)	120 (83.3)	0.001
C reactive protein >10.0 mg/L	265 (66.8)	121 (84.0)	<0.001
Aspartate aminotransferase >35.0 U/L	99 (24.9)	50 (34.7)	0.029
Alanine aminotransferase >40.0 U/L	93 (23.4)	41 (28.5)	0.260
Serum creatinine >81.0 μmol/L	37 (9.3)	27 (18.8)	0.004
Lactate dehydrogenase >250.0 U/L	190 (47.9)	93 (64.6)	0.001
Disease grade			
Ordinary	154 (38.8)	28 (19.4)	
Severe	208 (52.4)	76 (52.8)	
Critical	35 (8.8)	40 (27.8)	<0.001
Death	21 (5.3)	32 (22.2)	<0.001
Recovered	119 (30.0)	35 (24.3)	0.197

CVD, cardiovascular disease.

Table 1. Differences between COVID-19 patients with or without CVD.

GASTROENTEROLOGY

GASTROINTESTINAL: BOWEL ISCHEMIA IN A SUSPECTED CORONAVIRUS DISEASE (COVID-19) PATIENT

Citation: J Gastroenterol Hepatol. 2020 May 25. doi: 10.1111/jgh.15094. Online ahead of print.

Level of Evidence: 5

BLUF

Italian authors describe a 70-year-old male with suspected COVID-19, per European Center for Disease Control Criteria, who was subsequently found to have evidence of bowel ischemia on contrast CT imaging of the abdomen. This is believed to be the first case report of acute bowel ischemia due to thromboembolism in a non-survivor patient and highlights the possibility of extrapulmonary and thromboembolic symptoms in COVID-19 patients.

FIGURES

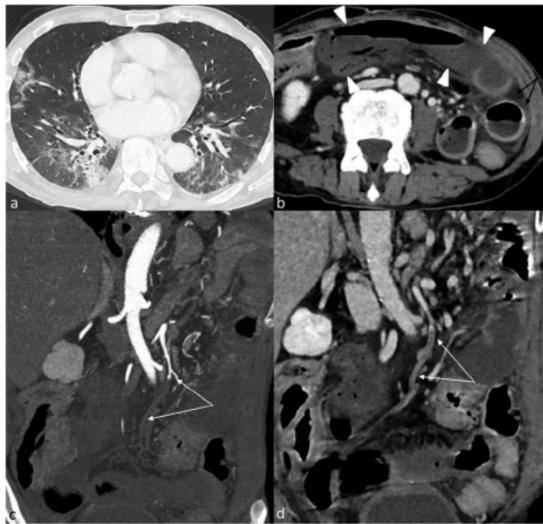


Figure 1 (a–d) CT scan of the chest (a) demonstrates bilateral opacities localized in peripheral and central parts of the lung, with prevalence of ground-glass pattern. In the abdomen (b), multiple small bowel loops are dilated and contain air-fluid levels; thinning of the walls and absence of contrast enhancement (arrowheads) indicate ischemia. Edema of the mesenteric fat and a small fluid collection are also seen (black arrow in b). Paracoronal reconstructions show occlusion of the superior mesenteric artery (arrows in c) due to thromboembolism, with associated late enhancement of the arterial walls in the equilibrium phase (arrows in d), suggestive for inflammation.

HEMATOLOGY AND ONCOLOGY

SYSTEMATIC ASSESSMENT OF VENOUS THROMBOEMBOLISM IN COVID-19 PATIENTS RECEIVING THROMBOPROPHYLAXIS: INCIDENCE AND ROLE OF D-DIMER AS PREDICTIVE FACTORS

Citation: J Thromb Thrombolysis. 2020 May 25. doi: 10.1007/s11239-020-02146-z. Online ahead of print.
Level of Evidence: 3

BLUF

A retrospective cohort study of 71 patients with COVID-19 diagnosed via RT-PCR and hospitalized at one of two French hospitals between March 25, 2020 and April 10, 2020 found that 22.5% of patients developed venous thromboembolism (VTE) and 10% developed pulmonary embolism (PE) despite adequate thromboprophylaxis. A D-dimer level less than 1.0 µg/ml had a negative predictive value of 90% for VTE and 98% for PE (figure 1); further studies to evaluate the utility of D-dimer levels to guide heparin dosing for individual thromboprophylaxis regimens are recommended.

ABSTRACT

Coagulopathy in COVID-19 is a burning issue and strategies to prevent thromboembolic events are debated and highly heterogeneous. The objective was to determine incidence and risk factors of venous thromboembolism (VTE) in COVID-19 inpatients receiving thromboprophylaxis. In this retrospective French cohort study, patients hospitalized in medical wards non-ICU with confirmed COVID-19 and adequate thromboprophylaxis were included. A systematic low limb venous duplex ultrasonography was performed at hospital discharge or earlier if deep venous thrombosis (DVT) was clinically suspected. Chest angio-CT scan was performed when pulmonary embolism (PE) was suspected. Of 71 patients, 16 developed VTE (22.5%) and 7 PE (10%) despite adequate thromboprophylaxis. D-dimers at baseline were significantly higher in patients with DVT ($p < 0.001$). Demographics, comorbidities, disease manifestations, severity score, and other biological parameters, including inflammatory markers, were similar in patients with and without VTE. The negative predictive value of a baseline D-dimer level $< 1.0 \text{ microg/ml}$ was 90% for VTE and 98% for PE. The positive predictive value for VTE was 44% and 67% for D-dimer level $\geq 1.0 \text{ microg/ml}$ and $\geq 3 \text{ microg/ml}$, respectively. The association between D-dimer level and VTE risk increased by taking into account the latest available D-dimer level prior to venous duplex ultrasonography for the patients with monitoring of D-dimer. Despite thromboprophylaxis, the risk of VTE is high in COVID-19 non-ICU inpatients. Increased D-dimer concentrations of more than 1.0 µg/ml predict the risk of venous thromboembolism. D-dimer level-guided aggressive thromboprophylaxis regimens using higher doses of heparin should be evaluated in prospective studies.

FIGURES

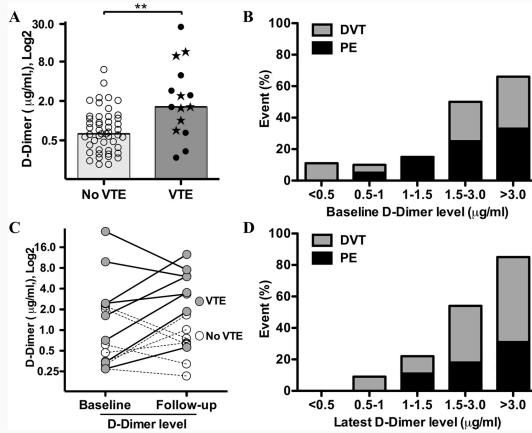


Figure 1. correlation between D-dimer levels and venous thromboembolic events in the 65 COVID-19 patients who had a D-dimer level measurement on admission. (a, top left) Baseline (admission) D-dimer levels according to thromboembolism events. Stars represent pulmonary embolism. (b, top right) Risk of deep venous thrombosis and pulmonary embolism according to baseline D-dimer levels. (c, bottom, left) D-dimer levels kinetics between baseline and the latest value before the venous duplex ultrasonography in the 15 patients with D-dimer levels monitoring. 7 patients with no VTE, median [IQR] admission D-dimer: 0.62 [0.41–1.34], median [IQR] last-value: 0.66 [0.61–0.89]; 8 patients with VTE, median [IQR] admission D-dimer: 2.01 [0.62–4.30], median [IQR] last-value: 4.75 [2.98–6.42] (d, bottom, right) Risk of deep venous thrombosis and pulmonary embolism according to the latest D-dimer levels. VTE venous thromboembolic events, DVT deep venous thrombosis, PE pulmonary embolism. **p < 0.01

SURGICAL SUBSPECIALTIES

NEUROSURGERY

STROKE AND MECHANICAL THROMBECTOMY IN PATIENTS WITH COVID-19: TECHNICAL OBSERVATIONS AND PATIENT CHARACTERISTICS

Citation: J Neurointerv Surg. 2020 May 25:neurintsurg-2020-016220. doi: 10.1136/neurintsurg-2020-016220. Online ahead of print.

Level of Evidence: 4

BLUF

This retrospective study describes five patients with COVID-19 (Age range 30's - 60's) who underwent thrombectomy due to neuroendovascular large vessel occlusions (LVO) in New York, New York, USA. The authors indicate that these cases may suggest COVID-19 induces a hypercoagulability state and suggest that neurointerventionalists may need to prepare for challenging thrombectomies in these patients.

SUMMARY

Five COVID-19 patients who underwent thrombectomy due to neuroendovascular large vessel occlusions (LVO). Presenting details for the patients are listed in Table 1. Demographic data showed that the average age of these patients was 12 to 15 years lower than the age of those who typically present with LVO. The authors found that while thrombectomy was an effective therapy for these occlusions, three of the five patients ultimately passed from COVID-19 complications. National Institutes of Health Stroke Scale (NIHSS scores) were also higher in these patients (median score: 27). The authors indicate that these cases suggest that neurointerventionalists may need to be prepared for younger patients with larger clot burdens, clot fragility, and distal emboli during mechanical thrombectomy. They also recommend more research on potential hypercoagulability states in COVID-19.

ABSTRACT

BACKGROUND: COVID-19 infections have been shown to be associated with a range of thromboembolic disease.

OBJECTIVE: To describe our endovascular experience in a consecutive series of patients with COVID-19 who presented with large vessel occlusions, and to describe unique findings in this population.

METHODS: Mechanical thrombectomy was performed on five consecutive patients with COVID-19 with large vessel occlusions. A retrospective study of these patients was performed. Patient demographics, laboratory values, mechanical thrombectomy technique, and clinical and angiographic outcomes were reviewed.

RESULTS: Four patients with COVID-19 presented with anterior circulation occlusions and one patient with COVID-19 presented with both anterior and posterior circulation occlusions. All patients had coagulation abnormalities. Mean patient age was 52.8 years. Three patients presented with an intracranial internal carotid artery occlusion. Two patients presented with an intracranial occlusion and a tandem thrombus in the carotid bulb. One patient presented with an occlusion in both the internal carotid and basilar arteries. Clot fragmentation and distal emboli to a new vascular territory were seen in two of five (40%) patients, and downstream emboli were seen in all five (100%) patients. Patient clinical outcome was generally poor in this series of patients with COVID-19 large vessel occlusion.

CONCLUSION: Our series of patients with COVID-19 demonstrated coagulation abnormalities, and compared with our previous experience with mechanical thrombectomy in large vessel occlusion, this group of patients were younger, had tandem or multiple territory occlusions, a large clot burden, and a propensity for clot fragmentation. These patients present unique challenges that make successful revascularization difficult.

FIGURES

Patient	Age, NIHSS score, IV tPA	Comorbidities	Laboratory abnormalities	Location of occlusion	Technical details	Angiographic outcome
1	50-60 years NIHSS 27 +tPA	Hypertension, coronary artery disease	↑ D-Dimer ↑ ESR, CRP ↑ INR, ↑ PTT ↑ IL-6	Tandem left carotid bulb thrombus and left M2 occlusion	Stent-aspiration combination	TICI 2a
2	50-60 years NIHSS 23 +tPA	Acute left pulmonary embolism	↑ D-Dimer ↑ ESR, CRP ↑ INR, ↑ PTT ↑ IL-6	Left ICA terminus occlusion	Stent-aspiration combination	TICI 2b
3	50-60 years NIHSS 28 +tPA	Acute myocardial infarction	↑ D-Dimer ↑ ESR, CRP ↑ INR, ↑ PTT ↑ IL-6	Right ICA terminus occlusion, basilar artery occlusion	Stent-aspiration combination, balloon guide catheter flow arrest	TICI 3 for ICA occlusion, TICI 2b basilar occlusion
4	30-40 years NIHSS 10 +tPA	Hypertension, diabetes	↑ D-Dimer ↑ ESR, CRP ↑ INR, ↑ PTT ↑ IL-6	Right ICA terminus occlusion, tandem right carotid bulb thrombus	Stent-aspiration initially, conversion to suction aspiration alone	TICI 3
5	30-40 years NIHSS 20 +tPA	None	↑ D-Dimer ↑ ESR, CRP ↑ INR, ↑ PTT ↑ IL-6	Left M1 occlusion	Stent-aspiration combination	TICI 2a

CRP, C-reactive protein; ESR, erythrocyte sedimentation rate; ICA, internal carotid artery; IL-6, interleukin 6; INR, international normalized ratio; NIHSS, National Institutes of Health Stroke Scale; PTT, partial thromboplastin time; TCI, thrombolysis in cerebral infarction; tPA, tissue plasminogen activator; tPA, tissue plasminogen activator.

Table 1. Details of mechanical thrombectomy performed in five consecutive COVID-19 positive patients with large vessel occlusion.

OTOLARYNGOLOGY

THE IMPACT OF THE PANDEMIC ON OTOLARYNGOLOGY PATIENTS WITH NEGATIVE COVID-19 STATUS: COMMENTARY AND INSIGHTS FROM ORBITAL EMERGENCIES

Citation: Otolaryngol Head Neck Surg. 2020 May 26:194599820931082. doi: 10.1177/0194599820931082. Online ahead of print.

Level of Evidence: 4

BLUF

An article by Long Island Jewish Medical Center and North Shore University Hospital in New York reflects on three non-COVID-19 cases to illustrate the challenge of delayed presentation of otolaryngology patients and changes to clinical management during the pandemic. The authors emphasize the importance for otolaryngologists to adapt their practice during the pandemic without diminishing patient care.

SUMMARY

The authors present three cases to illustrate challenges in otolaryngology practice and implemented changes to practice during the COVID-19 pandemic. The first case, a 34-year-old female with an intraconal orbital abscess, delayed presentation to a clinical setting, leading to worsening of her condition to the point where she had no light perception vision and an increased intraocular pressure of 54 mm Hg at arrival to the emergency department (ED, Figure 1). The authors speculate that delayed encounters such as this could be due to fearful patients concerned about contacting COVID-19 at clinical practices or difficulty in obtaining clinical care due to closed offices, suggesting the importance for hospitals to create timesaving and safe methods (COVID-19 testing, proper PPE, etc) for quickly moving patients from the ED to the operating room (OR). The second case, a 47-year-old male with a subperiosteal abscess along the orbital roof secondary to a frontal sinus mucocele, received a modified treatment of intravenous antibiotics and steroids rather than standard surgical care. This treatment was successful and avoided risk of viral transmission of surgical intervention, illustrating that otolaryngologists should evolve standard practice during the pandemic without jeopardizing care of the patient. Similarly, a third case of a 67-year-old woman with severe Graves' disease and compressive optic neuropathy has shown improvement with teprotumumab rather than preceding with surgical decompression.

ABSTRACT

Efforts aimed at minimizing the spread of COVID-19 and "flattening the curve" may be affecting clinical care delivery for non-COVID-19 cases that include otolaryngologic and orbital conditions. We are witnessing changes in the manner that patients present, as well as modifications in clinical management strategies. An improved understanding of these phenomena and the contributing factors is essential for otolaryngologists to provide sound clinical care during this unprecedented pandemic.

FIGURES



Figure 1. Computed tomography scan with intravenous contrast, including (a) axial and (b) coronal cuts, demonstrates fluid collection and phlegmon in the intra- and extraconal spaces of the right inferior orbit.

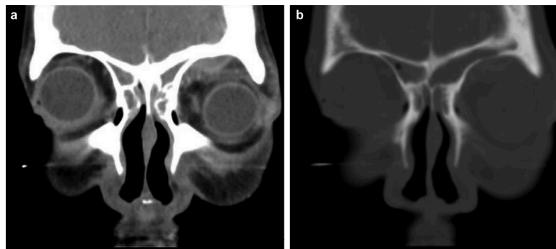


Figure 2. Computed tomography scan with intravenous contrast coronal cuts shows (a) left frontal sinus opacification with a subperiosteal abscess (1.3 x 1.6 x 0.5 cm) along the roof of the left orbit. (b) A small bone defect in the orbital roof can also be seen.

ADJUSTING PRACTICE DURING COVID-19

FOR HEALTHCARE PROFESSIONALS

ONSET OF OCCUPATIONAL HAND ECZEMA AMONG HEALTHCARE WORKERS DURING THE SARS-COV-2 PANDEMIC - COMPARING A SINGLE SURGICAL SITE WITH A COVID-19 INTENSIVE CARE UNIT

Citation: Contact Dermatitis. 2020 May 26. doi: 10.1111/cod.13618. Online ahead of print.

Level of Evidence: 3

BLUF

A survey distributed to 114 healthcare workers at a single surgical site and COVID-19 ICU in Munich, Germany found that hand washing increased significantly with the onset of the pandemic regardless of direct contact with COVID-19 patients. 90% of respondents reported symptoms of acute hand dermatitis, but only 14.9% recognized those symptoms as being the onset of eczema. These findings suggest that while hand sanitation has significantly increased during the COVID-19 pandemic, better skincare measures (such as regular application of moisturizing creams) should be taken to ensure protection of healthcare workers' hands.

ABSTRACT

BACKGROUND: Due to the COVID-19 outbreak, hygiene regulations have been intensified and hand sanitation has gained special attention.

OBJECTIVE: To investigate the onset of hand eczema during the COVID-19 pandemic in health care workers (HCWs) directly involved in intensive care of COVID-19 patients and HCWs without direct contact. Hereby, we aim at increasing awareness with regard to occupational hand eczema and preventive measures that can be undertaken.

METHODS: A survey was distributed amongst 114 HCWs at a single surgical site and at a COVID-19 intensive care unit of the university hospital LMU Munich, Germany. Participants were questioned with regard to the daily frequency of hand hygiene prior to and during the pandemic. Participants self-reported onset of hand eczema and associated symptoms.

RESULTS: Our study revealed a significant increase of hand washing, disinfection and use of hand cream across all participants (P -value < .001), regardless of having direct contact with COVID-19 patients. A high prevalence of symptoms associated with acute hand dermatitis was found in 90.4% across all HCWs, whereas hand eczema itself was underreported (14.9%).

CONCLUSION: The increase of hand sanitation during the COVID-19 pandemic impairs the skin of the hands across all HCWs, independent of direct intensive care of affected patients.

THE LANDSCAPE OF PRESCRIPTION DRUG SHORTAGES DURING THE COVID-19 PANDEMIC

Citation: J Med Toxicol. 2020 May 27. doi: 10.1007/s13181-020-00786-4. Online ahead of print.

Level of Evidence: Other

BLUF

This commentary by researchers in the US discusses rising drug shortages due to increased demand for various medications, including: metered-dose inhalers, antibiotics, cardiovascular medications, analgesics, sedatives, hydroxychloroquine, and chloroquine. The authors provide recommendations for adjusting care during these shortages.

SUMMARY

This commentary by researchers in the United States discusses the rising drug shortage that has a variety of underlying causes, including:

- An increase in critically ill patients and thus increased use of analgesics and sedatives.
- A fear of viral aerosolization resulting in a preference for metered-dose inhalers.
- Stockpiling of prescribed medications for chronic illnesses secondary to the shelter-in-place orders by states.
- A rise in demand for therapeutic regimens currently under investigation, including hydroxychloroquine.

The authors suggest the following measures to help adjust care during the shortage:

- Consider using second or third line agents, preserving first line medications for uses that have a life-saving benefit.
- Educate providers on new protocols for care during drug shortages.
- Prioritize open communication between pharmacists and other healthcare providers.
- Balance policies to minimize exposure risk for healthcare providers (e.g., use of metered dose inhalers) with policies designed to help conserve medication supplies.

ACUTE CARE

DIAGNOSTIC RADIOLOGY

COVID-19: IMPACT AND CHALLENGES AT BREAST IMAGING UNIT

Citation: Breast J. 2020 May 25. doi: 10.1111/tbj.13891. Online ahead of print.

Level of Evidence: Other

BLUF

A breast imaging unit at a tertiary care academic hospital in Saudi Arabia established policies and procedures to address challenges to care during the COVID-19 pandemic. Details of the preparedness plans below.

SUMMARY

The breast imaging unit's preparedness plans include:

- Screen all patients for COVID-19 as per hospital policy and redirect patients who screen positive for possible COVID-19 to a designated isolation clinic.
- All screening mammography and screening MRI cases were cancelled.
- Reschedule (Breast Imaging, Reporting and Data Systems) BI-RADS 3 cases and procedures and BI-RADS 4A procedures
- Only accept cases with high clinical concern.
- Sample (eg biopsy) for BI-RADS 4 and BI-RADS 5 at the same visit.
- All patients should be masked during the examination and procedure.
- Make PPE available and educate people on appropriate PPE donning/doffing techniques.
- Conduct preoperative localization just prior to surgery.
- Delay breast imaging studies of known or suspected COVID-19 patients per hospital policy.

- Incorporate social distancing practices for patients and staff in waiting rooms.
- Reassign technologists and radiologists to areas with greater needs (X-ray or CT).
- Incorporate remote consultation and enable diagnostic radiologists to work from home.
- Conduct undergraduate and postgraduate teaching through video communication.
- Require home quarantine for all staff who arrive from countries affected by the COVID-19 epidemic.
- Share updated information about COVID-19 and other information with postgraduate students, trainees, radiology staff, and all departments.

CARDIAC IMAGING PROCEDURES AND THE COVID-19 PANDEMIC: RECOMMENDATIONS OF THE EUROPEAN SOCIETY OF CARDIOVASCULAR RADIOLOGY (ESCR)

Citation: Int J Cardiovasc Imaging. 2020 May 26. doi: 10.1007/s10554-020-01892-8. Online ahead of print.

Level of Evidence: Other

BLUF

The European Society of Cardiovascular Radiologists released a consensus statement regarding management of cardiovascular imaging departments during COVID19. Recommendations detailed below:

- Adapting safe PPE and exposure precautions (Table 2).
- Restructuring the departments to minimize unnecessary contact between patients and staff.
- Changing imaging protocols to limit exposure (Table 3).
- Utilizing cardiac CT angiography and MRI to reduce use of more invasive procedures (e.g. cardiac catheterization or transoesophageal echocardiography).
- Utilizing CT to rule out pulmonary emboli, a developing concern in COVID19 patient's presenting with chest pain (Table 4).
- Using imaging modalities to evaluate cardiac insult secondary to SARS-COV-2 infection (Table 4).
- Limiting outpatient use of resources to focus on higher acuity inpatients.

ABSTRACT

The severe acute respiratory syndrome coronavirus 2019 (SARS-CoV-2) pandemic currently constitutes a significant burden on worldwide health care systems, with important implications on many levels, including radiology departments. Given the established fundamental role of cardiovascular imaging in modern healthcare, and the specific value of cardiopulmonary radiology in COVID-19 patients, departmental organisation and imaging programs need to be restructured during the pandemic in order to provide access to modern cardiovascular services to both infected and non-infected patients while ensuring safety for healthcare professionals. The uninterrupted availability of cardiovascular radiology services remains, particularly during the current pandemic outbreak, crucial for the initial evaluation and further follow-up of patients with suspected or known cardiovascular diseases in order to avoid unnecessary complications. Suspected or established COVID-19 patients may also have concomitant cardiovascular symptoms and require further imaging investigations. This statement by the European Society of Cardiovascular Radiology (ESCR) provides information on measures for safety of healthcare professionals and recommendations for cardiovascular imaging during the pandemic in both non-infected and COVID-19 patients.

FIGURES

Use of PPE	Health care professionals	Patient
COVID-19 confirmed or suspected	Patient contact	No direct patient contact
Unconfirmed		
CCTA/CMR	Full set of PPE including FFP2 mask, gloves, gown, goggles and/or face shield	FFP2, (gown)
Emergency with the need of intubation	Evacuate room with the exception of the emergency team	Mouth nose protection
COVID-19 negative inhouse	Patient contact	No enter scanner room
CCTA/CMR	FFP2 mask, gloves, gown	N/A
		No direct patient contact
		FFP2 or Mouth nose protection
		Mouth nose protection

Table 2. Categories and use of PPE for cardiac imaging procedures in COVID-19 positive patients

Assessment	Sequence	Comment
Function	CINE	Use acceleration (e.g. compressed sensing), limited number of acquisitions, acquisition after contrast injection/before LGE
Oedema	T1/T2 Mapping/T2 STIR	Mapping preferred to T2-STIR because of image quality, use limited representative SA slices for screening
Scar	3D-PSIR (SA)	LGE imaging after 6 min post contrast administration; adjust contrast media protocol
Thoracic	T2	One breath-hold sequences for lung pathology

Table 4. Possible indications for cardiac imaging during the COVID-19 pandemic

CCTA	CMR
COVID-19 positive patients	
Detection of LA or LAA Thrombus in atrial fibrillation	Acute Myocarditis, DD MINOCA, Tako-Tsubo Syndrome)
Rule out of coronary artery disease	
Rule out of pulmonary embolism (ev. Triple rule out protocols)	
Detection of suspected valvular endocarditis	
TAVI planning	
COVID-19 negative patients in-house	
Pre-operative CTA	Acute Myocarditis, DD MINOCA, Tako-Tsubo Syndrome)
Rule out of coronary artery disease	Dilated Cardiomyopathy (Stress Imaging)

MEDICAL SUBSPECIALTIES

PRACTICAL GUIDANCE FOR OUTPATIENT SPASTICITY MANAGEMENT DURING THE CORONAVIRUS (COVID-19) PANDEMIC: CANADIAN SPASTICITY COVID-19 TASK FORCE

Citation: Can J Neurol Sci. 2020 May 26:1-17. doi: 10.1017/cjn.2020.104. Online ahead of print.

Level of Evidence: Other

BLUF

The COVID-19 spasticity task force is a team of sixteen physiatrists and one neurologist from across Canada, who convened to discuss guidelines for managing spasticity patients while the Canadian healthcare system is overwhelmed with COVID-19 treatment and prevention. Their guidelines include ways to effectively use telemedicine, triage suggestions for determining which patients need to be seen in person, and in-clinic safety protocols.

SUMMARY

The COVID-19 spasticity task force recognizes that across Canada, local guidelines and resources may vary, but healthcare providers caring for spasticity patients should aim to:

1. Use telemedicine to conduct all intake appointments and appointments for patients not requiring interventional procedures.
2. Urgently bring in patients requiring intrathecal baclofen pump management within 48 hours.
3. See patients with worsening spasticity within 4 weeks.
4. Assume all patients are asymptomatic COVID-19 carriers for the sake of implementing proper screening and PPE within clinics.
5. If a patient has suspected or confirmed COVID-19, wait until 10 days after their last symptoms before allowing them to come for an in-person clinic visit.

HEMATOLOGY AND ONCOLOGY

PRIORITISATION AND THE INITIATION OF HCC SURVEILLANCE IN CHB PATIENTS: LESSONS TO LEARN FROM THE COVID-19 CRISIS

Citation: Gut. 2020 May 25:gutjnl-2020-321627. doi: 10.1136/gutjnl-2020-321627. Online ahead of print.

Level of Evidence: Other

BLUF

The authors propose a plan to best provide hepatocellular carcinoma (HCC) surveillance in patients with chronic hepatitis B (CHB) and how to prioritize patients for screening during the COVID-19 pandemic with limited resources and adherence to social distancing protocols.

SUMMARY

The use of abdominal ultrasound every 6 months is the gold standard for HCC surveillance. However, during the COVID-19 pandemic, this may need to be postponed. While patients and clinicians have to accept the delays to imaging in the short term, there also exists a need to identify patients at greatest need for continued monitoring. The authors recommend clinicians make use of contemporary HCC risk scores to create risk stratification for CHB patients including:

- Levels of HBsAg and HBcrAg may be of value in assessing both e-Antigen positive and negative patients, with and without antiviral therapy, and should be incorporated into future HCC risk scores.
- The Risk Estimation for Hepatocellular Carcinoma in Chronic Hepatitis B (REACH-B) score as the preferred risk model for CHB patients currently taking or maintained on antiviral therapy

- Consider patient demographics and disease-related factors
- A safe HBsAg cut-off level as a threshold for HCC surveillance

SURGICAL SUBSPECIALTIES

IMPACT OF THE COVID-19 PANDEMIC ON PATIENTS SUFFERING FROM MUSCULOSKELETAL TUMOURS

Citation: Int Orthop. 2020 May 26. doi: 10.1007/s00264-020-04636-4. Online ahead of print.

Level of Evidence: 3

BLUF

An online global survey of 149 orthopedic oncologists from 4/6/2020 – 4/21/2020 found that the COVID-19 pandemic resulted in a significant reduction in evaluation and treatment of musculoskeletal tumors (surgery, radiotherapy, and chemotherapy). 20.1% of survey respondents reported delays and 20.7% cancellations in surgery for bone sarcomas and soft tissue sarcomas (Table 1). The authors stress an urgent need for sarcoma patients to safely access cancer care during the pandemic as delays could lead to significant morbidity and mortality.

ABSTRACT

BACKGROUND: The aim of the current study was to evaluate the impact of the coronavirus disease (COVID-19) pandemic on musculoskeletal tumor service by conducting an online survey of physicians.

METHODS: The survey was conducted among the members of the ISOLS (International Society of Limb Salvage) and the EMSOS (European Musculo-Skeletal Oncology Society). The survey consisted of 20 questions (single, multiple-response, ranked): origin and surgical experience of the participant (four questions), potential disruption of healthcare (12 questions), and influence of the COVID-19 pandemic on the particular physician (four questions). A matrix with four different response options was created for the particular surgical procedures).

RESULTS: One hundred forty-nine physicians from five continents completed the survey. Of the respondents, 20.1% and 20.7% stated that surgery for life-threatening sarcomas were stopped or delayed, respectively. Even when the malignancy was expected to involve infiltration of a neurovascular bundle or fracture of a bone, still 13.8% and 14.7% of the respondents, respectively, stated that surgery was not performed. In cases of pending fractures of bone tumors, 37.5 to 46.2% of operations were canceled.

CONCLUSION: The SARS-CoV-2 pandemic caused a significant reduction in healthcare (surgery, radiotherapy, chemotherapy) for malignancies of the musculoskeletal system. Delaying or stopping these treatments is life-threatening or can cause severe morbidity, pain, and loss of function. Although the coronavirus disease causes severe medical complications, serious collateral damage including death due to delayed or untreated sarcomas should be avoided.

FIGURES

	Still performed	Stopped/ delayed	Not provided at our department
Amputation	85.9%	10.6%	3.5%
Neoadjuvant chemotherapy	82.6%	4.9%	12.5%
Adjuvant chemotherapy	82.4%	6.3%	11.3%
Resection for bone/soft tissue sarcoma-with risk of infiltration of the neurovascular bundle	82.1%	13.8%	4.1%
Resection for bone sarcoma with risk of fracture (e.g., osteosarcoma)	80.4%	14.7%	4.9%
Diagnostic X-ray/magnetic resonance imaging (MRI)/computed tomography (CT) scans	79.5%	17.8%	2.7%
Surgery of metastatic lesions with risk of fracture	79.2%	16.7%	4.2%
Adjuvant radiotherapy	77.2%	9.0%	13.8%
Surgery for soft tissue sarcoma	76.6%	20.7%	2.8%
Resection for bone sarcoma (e.g., osteosarcoma)	76.4%	20.1%	3.5%
Ultrasound/computed tomography (CT)-guided biopsy of suspicious musculoskeletal lesions	74.7%	16.4%	8.9%
Surgery for giant cell tumor of the bone with risk of fracture	72.9%	22.2%	4.9%
Reconstruction after bone sarcoma resection with standard endoprosthesis	72.7%	23.8%	3.5%
Neoadjuvant radiotherapy	72.4%	11.7%	15.9%
Open biopsy of suspicious musculoskeletal lesions	71.5%	20.1%	8.3%
Palliative radiotherapy	69.4%	16.7%	13.9%
Reconstruction after bone sarcoma resection with autologous bone graft	68.3%	23.5%	8.3%
Palliative chemotherapy	67.8%	20.3%	11.9%
Reconstruction after bone sarcoma resection with homologous bone graft	60.8%	24.5%	14.7%
Surgery of metastatic lesions	59.9%	32.4%	7.8%
Surgery for benign bone tumor with risk of fracture	59.7%	37.5%	2.8%
Reconstruction after bone sarcoma resection with custom made endoprosthesis	59.4%	25.9%	14.7%
Follow-up radiological imaging (e.g., X-ray/MRI/CT) after surgery for musculoskeletal tumors	57.5%	39.0%	3.4%
Surgery for giant cell tumor of the bone	53.9%	42.0%	4.2%
Surgery for bone cysts with risk of fracture	51.1%	46.2%	2.8%
Surgery for benign tumors	9.9%	88.7%	1.4%
Surgery for bone cysts	7.7%	90.2%	2.1%

Table 1. Percentage of dedicated procedures and investigations for musculoskeletal oncology patients evaluated by the respondents.

GENERAL SURGERY

OPERATING DURING COVID-19: IS THERE A RISK OF VIRAL TRANSMISSION FROM SURGICAL SMOKE DURING SURGERY?

Citation: Can J Surg. 2020 May 25;63(3):E299-E301. doi: 10.1503/cjs.007020.

Level of Evidence: Other

BLUF

An article by surgeons affiliated with Western University in Ontario discusses the risk that surgical smoke containing viral particles may pose during surgery. Despite some reviews and cases that may indicate an association between surgical smoke and viral transmission, extrapolation of these findings to SARS-CoV-2 is difficult due to lack of definitive data regarding surgical smoke. Therefore, the authors urge the medical community to recognize surgical smoke as an occupational hazard and expand research on this issue to build a more robust and safe surgical workspace in light of the COVID-19 pandemic.

ABSTRACT

Summary: The World Health Organization declared a pandemic when coronavirus disease 2019 (COVID-19) started to sweep the globe. Growing concerns for the safety of health care workers was raised when up to 80% of people with COVID-19 showed mild or no symptoms at all. Some surgical procedures will be inevitable during the pandemic, and proper safety measures must be in place to avoid transmission risks. Surgical smoke is a common by-product from the use of energy devices in the operating room. The effects of surgical smoke have been studied for more than 40 years, and potential health hazards have been reported. Chemicals, carcinogens and biologically active materials, such as bacteria and viruses, have been isolated in surgical smoke. To ensure the safety of operating room personnel, we must consider whether there is any concern of viral transmission from the inhalation of surgical smoke.

OTOLARYNGOLOGY

VIRTUAL DYSPHAGIA EVALUATION: PRACTICAL GUIDELINES FOR DYSPHAGIA MANAGEMENT IN THE CONTEXT OF THE COVID-19 PANDEMIC

Citation: Otolaryngol Head Neck Surg. 2020 May 26:194599820931791. doi: 10.1177/0194599820931791. Online ahead of print.

Level of Evidence: Other

BLUF

As most tools used by otolaryngologists are capable of dispersing aerosol droplets, this commentary by physicians in the United States provides recommendations for precautions against COVID-19 transmission when evaluating dysphagia in an office setting.

SUMMARY

Recommendations for preventing COVID-19 transmission when evaluating patients with dysphagia in otolaryngology offices include:

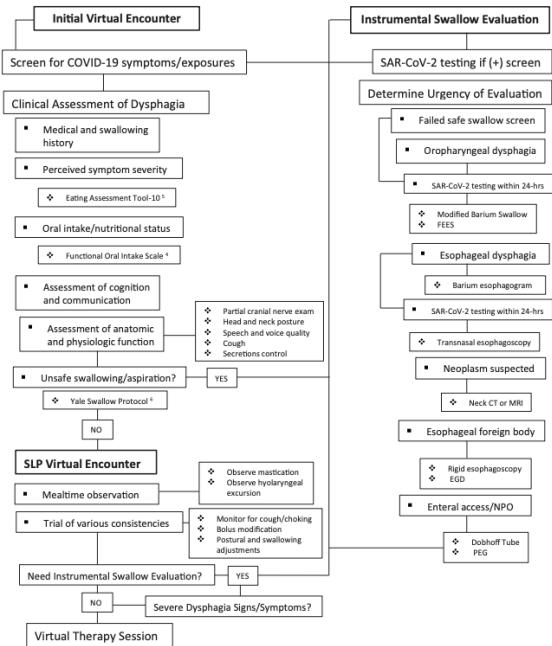
1. Pre-screening patients via video encounters to assess both their dysphagia and their risk factors for COVID-19 based on the CDC and WHO recommendations. Those who screen positive for COVID-19 risk factors can delay in-person appointments provided their dysphagia is not urgent or life-threatening.
2. Barium esophagram doesn't require close contact, so it can be used safely when evaluating patients for esophageal dysmotility.
3. Radiographic imaging can be used safely for patients who may have malignancy.
4. When a diagnostic procedure is required to evaluate oropharyngeal dysphagia, the authors recommend modified barium swallowing study (MBSS) over fiberoptic endoscopic evaluation of swallowing (FEES) as MBSS is less likely to disperse aerosol particles. When performing any aerosol generating procedure, they recommend use of proper PPE and air filters in the procedure suite to remove aerosol particles.

A summary of the recommended workflow is presented in the Figure 1.

ABSTRACT

With encouraging signs of pandemic containment nationwide, the promise of return to a full range of clinical practice is on the horizon. Clinicians are starting to prepare for a transition from limited evaluation of emergent and urgent complaints to resumption of elective surgical procedures and routine office visits within the next few weeks to months. Otolaryngology as a specialty faces unique challenges when it comes to the COVID-19 pandemic due to the fact that a comprehensive head and neck examination requires aerosol-generating endoscopic procedures. Since the COVID-19 pandemic is far from being over and the future may hold other highly communicable infectious threats that may require similar precautions, standard approaches to the clinical evaluation of common otolaryngology complaints will have to be modified. In this communication, we present practical recommendations for dysphagia evaluation with modifications to allow a safe and comprehensive assessment.

FIGURES



ORTHOPEDICS

STAYING HOME DURING "COVID-19" DECREASED FRACTURES, BUT TRAUMA DID NOT QUARANTINE IN ONE HUNDRED AND TWELVE ADULTS AND TWENTY EIGHT CHILDREN AND THE "TSUNAMI OF RECOMMENDATIONS" COULD NOT LOCKDOWN TWELVE ELECTIVE OPERATIONS

Citation: Int Orthop. 2020 May 25. doi: 10.1007/s00264-020-04619-5. Online ahead of print.

Level of Evidence: 3

BLUF

Belgian orthopedists describe the characteristics of 152 orthopedic patients (12 requiring admission for non-deferrable elective surgery, 140 presenting with acute injury {sprains, dislocations, or wounds}) presenting to two hospitals between 3/1/2020 and 4/15/2020. Of note, the pandemic lockdown was declared 3/16/2020. They compared this cohort to a similar group of patients presenting to the same hospitals during the same time period in 2018 and determined the following:

- There was a 32% decrease in total fractures during the lockdown.
- There was no increase in post-surgical mortality rates in the 5% of patients with trochanteric fracture.
- Of the patients presenting with injury requiring there appeared to be a ten-fold increase in the number of COVID-19 positive individuals (4 in 152) compared to the general population in Belgium (1 in 3000).

The authors surmise staying at home has a large role in decreasing fracture incidence. Additionally, they believe these findings demonstrate fractures requiring urgent repair do not increase mortality risk during the COVID-19 pandemic. Moving forward, they recommend screening all patients undergoing surgery for COVID-19 to control transmission rates within the hospital.

ABSTRACT

PURPOSE: The current pandemic caused by COVID-19 is the biggest challenge for national health systems for a century. While most medical resources are allocated to treat COVID-19 patients, fractures still need to be treated, as some patients with non-deferrable pathologies. The aim of this paper is to report the early experience of an integrated team of orthopaedic surgeons during this period.

MATERIAL AND METHODS: This is a mono-geographic, observational, retrospective, descriptive study. We collected data from the beginning of the epidemic (1 March 2020), during the pandemic lockdown period (declared in the country on March 16, 2020) until the end of our study period on April 15, 2020. All the 140 patients presented to the Emergency Department of the hospital during this period with a diagnosis of fracture, or trauma (sprains, dislocations, wounds) were included in the cohort. In addition, 12 patients needing hospitalization for planning a non-deferrable elective surgical treatment were included. A group of patients from the two same hospitals and treated during the same period (1st March 2018 to April 15, 2018) but previously was used as control.

RESULTS: Of these 152 patients (mean age 45.5 years; range 1 to 103), 100 underwent a surgical procedure and 52 were managed non-operatively. Twenty-eight were children and 124 were adults. The COVID-19 diagnosis was confirmed for four patients. The frequency of patients with confirmed COVID-19 diagnosis among this population treated in emergency was ten fold higher (2.6%; 4 among 152) than in the general population (0.30%) of the country. The mortality rate for patients with surgery was 2% (2 of 100 patients) and 50% (2 of 4) for those older than 60 years with COVID-19; it was null for patients who were managed non-operatively. As compared to the year 2018, the number of patients seen with trauma had decreased of 32% during the epidemic.

CONCLUSION: Staying home during the COVID-19 pandemic decreased trauma frequency of 32%. The structural organization in our hospital allowed us to reduce the time to surgery and ultimately hospital stay, thereby maximizing the already stretched medical resources available to treat all the patients who needed orthopedic care during this period.

FIGURES

Category	2018 Patients (Nb)	2020 Patients (Nb)
Proximal femoral fractures	34	23
Adult lower limb fractures	37	20
Femoral fractures	3	3
Tibial	4	3
Ankle	15	9
Others	15	5
Adult upper limb fractures	58	36
Humeral fractures	12	12
Wrist	19	13
Elbow	7	4
Hand wounds	20	7
Total adult fractures	129	80
Child fractures	3	8

Table 3: Patients with surgery performed (conservative treatment excluded).
Comparison between 2018 and 2020 (same period)

OBGYN

UPTREND IN DISTRESS AND PSYCHIATRIC SYMPTOMATOLOGY IN PREGNANT WOMEN DURING THE COVID-19 PANDEMIC

Citation: Acta Obstet Gynecol Scand. 2020 May 25. doi: 10.1111/aogs.13925. Online ahead of print.

Level of Evidence: 1

BLUF

A retrospective cohort study of 1754 pregnant persons conducted in Quebec, Canada by a multidisciplinary group of researchers found that pregnant patients during the COVID-19 pandemic were more likely to report higher levels of depressive, anxiety, dissociative, and PTSD symptoms than a comparable cohort of pre-COVID-19 pregnant patients. Multiple variable analysis (MVA) suggests that COVID-19 era pregnant persons with previous psychological diagnoses or low income may be at higher risk. Given the harmful effects of maternal distress on fetal wellbeing, providers should watch for mental health symptoms.

ABSTRACT

INTRODUCTION: Prenatal maternal distress has a negative impact on the course of pregnancy, fetal development, offspring development and later psychopathologies. The study aimed to determine the extent to which the Coronavirus disease 2019 (COVID-19) pandemic may aggravate pregnant women prenatal distress and psychiatric symptomatology.

MATERIAL AND METHODS: Two cohorts of pregnant volunteer women were evaluated, one that was recruited before the COVID-19 pandemic ($n=496$) through advertisements in prenatal clinics in Quebec, Canada, from April 2018 to March 2020; the other ($n=1258$) was recruited online during the pandemic from April 2 to April 13 2020. Prenatal distress and psychiatric symptomatology were measured with the Kessler Distress Scale (K10), Post-traumatic Checklist for DSM-5 (PCL-5), Dissociative Experiences Scale (DES-II) and Positive and Negative Affect Schedule (PANAS).

RESULTS: The 1754 pregnant women ($M_{age} = 29.27$, $SD = 4.23$) were between 4 and 41 gestational weeks ($M = 24.80$, $SD = 9.42$), were generally educated (91.3% had post-high school training) and financially well-resourced (85.3% were above the low-income cut-off). A multivariate analysis of covariance controlling for age, gestational age, household income, education and lifetime psychiatric disorders showed a large effect size (ES) in the difference between the two cohorts on psychiatric symptoms (Wilks' lambda=0.68, $F_{6,1400} = 108.50$, $p < 0.001$, partial eta² = 0.32). According to post-hoc analyses of covariance, the COVID-19 women reported higher levels of depressive and anxiety symptoms (ES=0.57), dissociative symptoms (ES=0.22 and 0.25), symptoms of post-traumatic stress disorder (ES=0.19), negative affectivity (ES = 0.96) and less positive affectivity (ES=0.95) than the pre-COVID-19 cohort. Women from the COVID-19 cohort were more likely than pre-COVID-19 women to present clinically significant levels of depressive and anxiety symptoms [$OR = 1.94$, $\chi^2(1) = 10.05$, $p = .002$]. Multiple regression analyses indicated that COVID-19 pregnant women having a previous psychiatric diagnosis or low income would be more prone to elevated distress and psychiatric symptoms.

CONCLUSIONS: Pregnant women assessed during the COVID-19 pandemic reported more distress and psychiatric symptoms than pregnant women assessed before the pandemic, mainly in the form of depression and anxiety symptoms. Given the harmful consequences of prenatal distress on mothers and offspring, the presently observed upsurge of symptoms in pregnant women calls for special means of clinical surveillance.

FIGURES

Table 2. Analyses of covariance comparing the pre-Covid-19 cohort to the COVID-19 cohort of pregnant women on six psychiatric symptoms.

Dependent variables	Group	M^1	SE	df	F	P-value	Effect size
Anxiety/depression (n = 1741)	Pre-COVID-19	-0.39	0.04	1, 1734	112.93	< .001	0.57
	COVID-19	0.15	0.03				
Negative affectivity (n = 1730)	Pre-COVID-19	-0.64	0.04	1, 1723	321.80	< .001	0.96
	COVID-19	0.25	0.03				
Low positive affectivity (n = 1730)	Pre-COVID-19	-0.64	0.04	1, 1723	316.96	< .001	0.95
	COVID-19	0.25	0.03				
Post-traumatic stress (n = 1568)	Pre-COVID-19	-0.12	0.04	1, 1561	11.40	.001	0.19
	COVID-19	0.09	0.03				
Dissociation Absorption (n = 1468)	Pre-COVID-19	-0.15	0.04	1, 1461	16.32	< .001	0.22
	COVID-19	0.07	0.03				
Dissociation/ Depersonalization (n = 1462)	Pre-COVID-19	-0.17	0.05	1, 1455	19.71	< .001	0.25
	COVID-19	0.09	0.03				

ANCOVAs were performed to examine group differences on the psychiatric symptoms separately. Scores were previously converted to z-scores. The analyses controlled for age, gestational age, education level, household income and lifetime psychiatric disorders. Effect sizes (ES) were calculated using the difference of adjusted means between participants of the COVID-19 and pre-COVID-19 cohorts divided by a pooled standard deviation.

Abbreviations. M, Estimated marginal means; SE, Standard error; df, degree of freedom; P, probability value; ES, Effect sizes.

Table 3. Multiple regressions assessing the association between sociodemographic characteristics and the three clusters of symptoms in pregnant women of the COVID-19 cohort.

Criteria	Predictors	Adjusted R ²	B	SE	β	P-value	95% CI lower bound	95% CI upper bound
Mood and anxiety symptoms	Lifetime psychiatric disorder	0.07	0.52	0.07	0.21	< .001	0.39	0.64
	Age		-0.01	0.006	-0.03	.24	-0.02	0.01
	Education		-0.08	0.03	-0.07	.02	-0.14	-0.02
	Household income		-0.03	0.01	-0.08	.005	-0.06	-0.01
Dissociative symptoms	Gestational age		0.001	0.003	0.009	.72	-0.004	0.01
	Lifetime psychiatric disorder		0.34	0.07	0.14	< .001	0.21	0.47
	Age		-0.001	0.007	-0.01	.85	-0.01	0.01
	Education		-0.07	0.03	-0.07	.03	-0.13	-0.006
Low positive affectivity	Household income		-0.06	0.01	-0.14	< .001	-0.08	-0.03
	Gestational age		0.00	0.003	0.001	.96	-0.01	0.01
	Lifetime psychiatric disorder		0.20	0.07	0.08	.003	0.07	0.33
	Age		-0.08	0.007	-0.03	.22	-0.02	0.01
	Education		0.12	0.03	0.12	< .001	0.06	0.19
	Household income		0.02	0.01	0.05	.14	-0.01	0.04
	Gestational age		-0.01	0.003	-0.09	< .001	-0.02	-0.004

A factor analysis was performed on the COVID-19 cohort to regroup the six clinical symptoms into a limited number of meaningful clusters. The analysis yielded three domains of symptoms: mood and anxiety symptoms (including symptoms of anxiety/depression, negative affectivity and symptoms of PTSD), dissociative symptoms and low positive affectivity (see Table S4). Three multiple regressions were next performed with the COVID-19 women's clinical and sociodemographic characteristics as predictors and the factor scores as criteria. The significance level was fixed at $p < .02$.

Abbreviations. B, unstandardized beta; β , standardized beta; SE, Standard error for the unstandardized beta; P, probability value; CI, confidence intervals.

PSYCHIATRY

PSYCHIATRY IN TIMES OF THE CORONAVIRUS DISEASE 2019 (COVID-19) PANDEMIC: AN IMPERATIVE FOR PSYCHIATRISTS TO ACT NOW

Citation: JAMA Psychiatry. 2020 May 27. doi: 10.1001/jamapsychiatry.2020.1225. Online ahead of print.

Level of Evidence: Other

BLUF

A letter written by Dutch psychiatrists proposes a five action plan for psychiatrists to help reduce the negative effect of mental health during the COVID-19 pandemic. They suggest:

1. Shifting to a proactive state
2. Increasing prevention and education intervention to the public.
3. Rethinking treatment options
4. Recognizing undesired effects of the current healthcare crisis on mental health.
5. Fostering a purposeful education for psychiatry residents and medical students during this time.

Additional details for these recommendations summarized below.

SUMMARY

The authors envision five actions to reduce the negative impact on mental illnesses during the COVID-19 pandemic:

1. Be Proactive
 - a. Shift from elective to emergency consultations and assist patients in need of urgent care.
 - b. Engage and promote the use of teleconsultations in outpatient clinics.
 - c. Create specialized units for patients who test positive for COVID-19.
2. Prevention and Education
 - a. Educate patients vulnerable to mental illness about the importance and consequences of social isolation.
 - b. Increase availability either online or by phone.
 - c. Provide and promote information about general well-being during quarantine.
3. Treatments
 - a. Rethink current treatments as access to medication may be a challenge.
 - b. Switch prescriptions to drugs with longer half-lives as they typically have fewer adverse effects if discontinued due to delays in follow-up appointments.
 - c. Be aware of current or possible future interactions with COVID-19 medications.
4. Counteract and React
 - a. Analyze the negative mental effects of COVID-19 on individuals with and without a mental health history.
 - b. Provide psychoducational sessions and easy access to mental health care in the work environment.
5. Foster Education
 - a. Foster educational experience with webinars for psychiatry residents and medical students to enhance their skills.
 - b. Prioritize the educational opportunity for medical students and residents to develop skills in areas such as telemedicine and suicide prevention methods.

R&D: DIAGNOSIS & TREATMENTS

IMAGING EVALUATION OF COVID-19 IN THE EMERGENCY DEPARTMENT

Citation: Emerg Radiol. 2020 May 25. doi: 10.1007/s10140-020-01787-0. Online ahead of print.

Level of Evidence: 4

BLUF

This is a retrospective analysis of 227 patients who presented with symptoms of COVID-19 to the emergency departments of three trauma centers in the Metropolitan Detroit area during the period from March 12th, 2020 to March 28th, 2020. Of the 192 patients for whom COVID-19 RT-PCR was performed, 173 were positive. Abnormal imaging was found on CXR in 85.7% and on CT in 100% of RT-PCR+ patients. African Americans made up the largest demographic at 76.8% of cases. Suspicious radiographic findings especially in patients who test negative for RT-PCR or who do not meet the criteria for testing may trigger appropriate precautions to prevent viral spread. These cases emphasize the important role a radiologist can play in supplementing the imperfect sensitivity of the RT-PCR test for COVID-19.

ABSTRACT

PURPOSE: The purpose of this study is to elucidate the chest imaging findings of suspected COVID-19 patients presenting to the emergency department and the relationship with their demographics and RT-PCR testing results.

METHODS: Patients presenting to the ED between March 12 and March 28, 2020, with symptoms suspicious for COVID-19 and subsequent CXR and/or CT exam were selected. Patients imaged for other reasons with findings suspicious for COVID-19 were also included. Demographics, laboratory test results, and history were extracted from the medical record. Descriptive statistics were used to explore the relationship between imaging and these factors.

RESULTS: A total of 227 patients from the emergency department were analyzed (224 CXRs and 25 CTs). Of the 192 patients with COVID-19 results, 173 (90.1%) had COVID-19 RT-PCR (+). Abnormal imaging (CXR, 85.7% and/or CT, 100%) was noted in 155 (89.6%) of COVID-19 RT-PCR (+) cases. The most common imaging findings were mixed airspace/interstitial opacities (39.8%) on CXR and peripheral GGOs on CT (92%). The most common demographic were African Americans (76.8%).

Furthermore, 97.1% of African Americans were RT-PCR (+) compared to 65.8% of Caucasians.

CONCLUSION: We found a similar spectrum of thoracic imaging findings in COVID-19 patients as previous studies. The most common demographic were African Americans (76.8%). Furthermore, 97.1% of African Americans were RT-PCR (+) compared to 65.8% of Caucasians. Both CT and CXR can accurately identify COVID-19 pneumonitis in 89.6% of RT-PCR (+) cases, 89.5% of false negatives, and 72.7% of cases with no RT-PCR result.

CURRENT DIAGNOSTICS

THE OUTLOOK FOR DIAGNOSTIC PURPOSES OF THE 2019-NOVEL CORONAVIRUS DISEASE

Citation: J Cell Physiol. 2020 May 26. doi: 10.1002/jcp.29804. Online ahead of print.

Level of Evidence: 1

BLUF

In this review, the authors provide an in depth overview of the methods for diagnosing COVID-19 infection (Figure 1). While there are currently several studies underway aimed at investigating the efficacy of COVID-19 diagnostic methods (Table 1), the authors discuss available data and note the following:

- Clinical diagnoses based on clinical features and radiological findings allow for early detection; however, normal imaging does not exclude COVID-19, and verification by reverse transcription polymerase chain reaction (RT-PCR) or gene sequencing studies is needed.
- Although RT-PCR is the gold standard for molecular tests and can detect SARS-CoV-2 RNA in different clinical specimens, it requires excessive equipment, presents possibilities for error, and requires time for testing. Closed-tube Penn-RAMP is a novel assay designed to simplify detection. Both of these tests can quantify viral load and reproducibly determine infection status.
- Serological assays such as Enzyme-linked immunosorbent assay (ELISA), colloidal gold-immunochromatographic assay (GICA), rapid antigen tests, and lateral flow assay (LFA) can be useful for the identification of antibodies in bodily fluids, but are uncommonly used due to commercial reagent limitations.

ABSTRACT

At the end of December 2019, a novel acute respiratory syndrome coronavirus 2 (SARS-CoV2) appeared as the third unheard of outbreak of human coronavirus infection in the 21st century. First, in Wuhan, China, the novel SARS-CoV2 was named by the World Health Organization (WHO), as 2019-nCoV (COVID-19), and spread extremely all over the world. SARS-CoV2 is transmitted to individuals by human-to-human transmission leading to severe viral pneumonia and respiratory system injury. SARS-CoV2 elicits infections from the common cold to severe conditions accompanied by lung injury, acute respiratory distress syndrome, and other organ destruction. There is a possibility of virus transmission from asymptomatic cases as active carriers, in addition to symptomatic ones, which is a crucial crisis of COVID-19 that should be considered. Hence, paying more attention to the accurate and immediate diagnosis of suspected and infected cases can be a great help in preventing the rapid spread of the virus, improving the disease prognosis, and controlling the pandemic. In this review, we provide a comprehensive and up-to-date overview of the different types of Clinical and Para-clinical diagnostic methods and their practical features, which can help understand better the applications and capacities of various diagnostic approaches for COVID-19 infected cases.

FIGURES

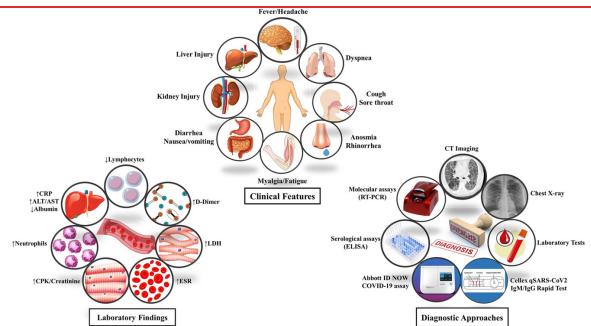


Figure 1: Clinical features, laboratory findings, and diagnostic approaches of COVID-19 at a glance (Designed by Esmaeilzadeh et al.). ALT, alanine aminotransferase; AST, aspartate aminotransferase; CPK, creatine phosphokinase; CRP, C-reactive protein; ESR, erythrocyte sedimentation rate; LDH, lactate dehydrogenase

TABLE 1 Studies of COVID-19 diagnostic methods

Registration cCode	Study status	Study type	Diagnostic test
NCT04284046	Completed	Observational	CT score
NCT04220017	Recruiting	Observational	Electrocardiogram transthoracic echocardiography
NCT04313946	Recruiting	Observational	Scanning chest X-rays
NCT04318314	Recruiting	Observational	COPAN swabbing blood sample collection
NCT04245631	Recruiting	Observational	RT-RAA assay
NCT04225213	Recruiting	Observational	Biomarkers expression
NCT04222279	Recruiting	Observational	IgM/IgG serology assay whole exome sequencing
NCT04299007	Not yet recruiting	Observational	GC-IMS assay
NCT04211998	Not yet recruiting	Observational	New QIAstat-Dx fully automatic multiple PCR detection platform
NCT04205011	Not yet recruiting	Observational	CT-V
NCT04248466	Not yet recruiting	Observational	Nasopharyngeal swab for the molecular diagnosis
NCT04222487	Not yet recruiting	Observational	Lung ultrasound
NCT04226387	Not yet recruiting	Observational	Point of care Isothermal-PCR Viral RNA Amplification for virus detection reverse-transcription PCR chest X-ray and CT scan detection
NCT04281693	Not yet recruiting	Interventional	Screening strategy (RNA detection)
NCT0416728	Not yet recruiting	Interventional	VivaDiag™ IgM/IgG Rapid Test
NCT04318431	Not yet recruiting	Interventional	Rhinopharyngeal swab-PCR

Abbreviations: CT, computed tomography; RT-RAA, real-time reverse-transcription recombinase aided amplification; GC-IMS, gas chromatography-ion mobility spectrometry; RNA, ribonucleic acid; PCR, polymerase chain reaction.

DEVELOPMENTS IN TREATMENTS

REPURPOSING APPROVED DRUGS AS INHIBITORS OF SARS-COV-2 S-PROTEIN FROM MOLECULAR MODELING AND VIRTUAL SCREENING

Citation: J Biomol Struct Dyn. 2020 May 25:1-14. doi: 10.1080/07391102.2020.1772885. Online ahead of print.

Level of Evidence: 5

BLUF

In this in-silico study, the authors used the molecular modeling software GROMACS to conduct a molecular dynamics simulation of the isolated ACE2 receptor-binding S-protein of SARS-CoV-2. From this, they determined likely configurations in which the S-protein binds the ACE2 receptor. They then used AutoDockTools to screen 9091 already-approved drugs in the SWEETLEAD library for their binding affinities to the S-protein. The results suggested that compounds with hydroxyl groups and monosaccharide moieties may have the highest binding affinities to the S-protein, shedding light on potential drug candidates for future investigation.

ABSTRACT

Herein, molecular modeling techniques were used with the main goal to obtain candidates from a drug database as potential targets to be used against SARS-CoV-2. This novel coronavirus, responsible by the COVID-19 outbreak since the end of 2019, became a challenge since there is not vaccine for this disease. The first step in this investigation was to solvate the isolated S-protein in water for molecular dynamics (MD) simulation, being observed a transition from "up" to "down" conformation of receptor-binding domain (RBD) of the S-protein with angle of 54.3 and 43.0 degrees, respectively. The RBD region was more exposed to the solvent and to the possible drugs due to its enhanced surface area. From the equilibrated MD structure, virtual screening by docking calculations were performed using a library contained 9091 FDA approved drugs. Among them, 24 best-scored ligands (14 traditional herbal isolate and 10 approved drugs) with the binding energy below -8.1 kcal/mol were selected as potential candidates to inhibit the SARS-CoV-2 S-protein, preventing the human cell infection and their replication. For instance, the ivermectin drug (present in our list of promise candidates) was recently used successful to control viral replication in vitro. MD simulations were performed for the three best ligands@S-protein complexes and the binding energies were calculated using the MM/PBSA approach. Overall, it is highlighted an important strategy, some key residues, and chemical groups which may be considered on clinical trials for COVID-19 outbreak.

MAY WE TARGET DOUBLE MEMBRANE VESICLES AND OXYSTEROL-BINDING PROTEIN TO COMBAT SARS-COV-2 INFECTION?

Citation: Cell Biol Int. 2020 May 25. doi: 10.1002/cbin.11400. Online ahead of print.

Level of Evidence: 5

BLUF

The authors review current literature to highlight in vitro studies detailing the inhibition of double-membrane vesicle (DMV) formation, an established early step in coronavirus replication, and the inhibition of RNA virus replication by targeting oxysterol-binding proteins (OSBPs). Though no role for OSBPs has currently been found in coronaviruses, the authors advocate for more studies to develop new antiviral therapies that can target either the DMV formation or OSBPs.

ABSTRACT

Since the first human infection of SARS-CoV-2 was reported in the Hubei (Wuhan) province of China, the world has been facing a relentless degree of socioeconomic and medical crisis. The disease of SARS-CoV-2 infection which is now called the COVID-19 pandemic has spread to several countries across the globe (Nicastri et al., 2020). This article is protected by copyright. All rights reserved.

REPURPOSING QUATERNARY AMMONIUM COMPOUNDS AS POTENTIAL TREATMENTS FOR COVID-19

Citation: Pharm Res. 2020 May 25;37(6):104. doi: 10.1007/s11095-020-02842-8.

Level of Evidence: 5

BLUF

A review conducted by a team in North Carolina identified quaternary ammonium compounds (cetylpyridinium chloride and miramistin) as chemicals of interest for use against SARS-CoV-2 (Table 1). Notably, the authors suggest immediate clinical trials for cetylpyridinium chloride in the form of mouthwash or nasal spray to evaluate its in vitro activity against SARS-CoV-2. This recommendation is based on reports that cetylpyridinium causes virus inactivation by lysomotropic action. The authors believe this drug may combat the virus at its point of entry warranting additional studies assessing the drugs pharmacodynamics.

ABSTRACT

The COVID-19 pandemic has highlighted an important role for drug repurposing. Quaternary ammonium compounds such as ammonium chloride, cetylpyridinium and miramistin represent widely accessible antiseptic molecules with well-known broad-spectrum antiviral activities and represent a repurposing opportunity as therapeutics against SARS-CoV-2.

FIGURES

Molecule	Antiviral activity	Mechanism	FDA approved	Uses
Ammonium Chloride	Murine coronavirus, hepatitis C,	Lysosomotropic	Yes	Various uses including metabolic acidosis.
Cetylpyridinium chloride	Influenza, hepatitis B, poliovirus 1	Targets capsid and is lysosomotropic	Yes, GRAS	Antiseptic, mouthwash, cough lozenges, personal care products, cleaning agents etc.
Miramistin	HIV, influenza, herpes, SARS	Immunostimulating, targets capsid and is lysosomotropic	No, but is approved in Russia	Antiseptic

Table 1. Quaternary ammonium compounds with known coronavirus activity

THE G-QUADRUPLEX/HELICASE WORLD AS A POTENTIAL ANTIVIRAL APPROACH AGAINST COVID-19

Citation: Drugs. 2020 May 25. doi: 10.1007/s40265-020-01321-z. Online ahead of print.

Level of Evidence: 5

BLUF

The authors reviewed literature and performed genome mapping and search methods to find 25 putative G4-forming sequences in the SARS-CoV-2 viral genome and 18 FDA-approved compounds that target helicases, respectively. The authors suggest that G4 ligands may be new antiviral therapies to pursue, and currently approved drugs may be repurposed to target the viral replication machinery of SARS-CoV-2 (Figure 1).

ABSTRACT

G-Quadruplexes (G4s) are non-canonical secondary structures formed within guanine-rich regions of DNA or RNA. G4 sequences/structures have been detected in human and in viral genomes, including Coronaviruses Severe Acute Respiratory Syndrome Coronavirus (SARS-CoV) and SARS-CoV-2. Here, we outline the existing evidence indicating that G4 ligands and inhibitors of SARS-CoV-2 helicase may exert some antiviral activity reducing viral replication and can represent a potential therapeutic approach to tackle the COVID-19 pandemic due to SARS-CoV-2 infection. We also discuss how repositioning of FDA-approved drugs against helicase activity of other viruses, could represent a rapid strategy to limit deaths associated with COVID-19 pandemic.

FIGURES

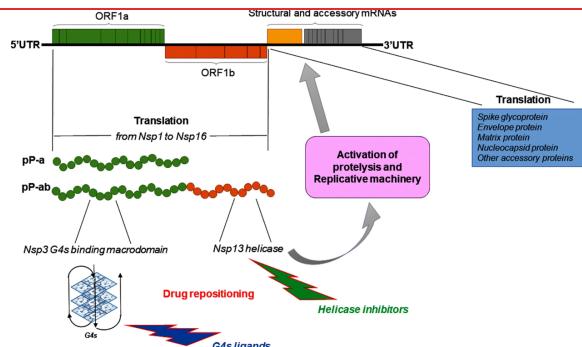


Figure 1. Diagram of the COVID-19 virus genome organization, highlighting G4 sites and helicases as potential therapeutic topics.

HOW DID WE RAPIDLY IMPLEMENT A CONVALESCENT PLASMA PROGRAM?

Citation: Transfusion. 2020 May 25. doi: 10.1111/trf.15910. Online ahead of print.

Level of Evidence: Other

BLUF

The authors describe the methodology they used to develop and implement the first COVID-19 convalescent plasma program in the United States at the New York Blood Center enterprises. They provide recommendations for optimizing future COVID-19 convalescent plasma programs should this be proven to be an effective treatment for COVID-19.

ABSTRACT

Since the beginning of the COVID-19 pandemic, the use of convalescent plasma as a possible treatment has been explored. Here we describe our experience as the first US organization creating a COVID-19 convalescent plasma program to support compassionate use through the single patient emergency IND, the National Expanded Access Program and multiple randomized control trials. Within weeks, we were able to distribute over 8000 products, scale up collections to over 4,000 units per week, meet hospital demand, as well as support randomized controlled trials to evaluate the efficacy of convalescent plasma treatment. This was through strategic planning, re-deployment of staff, and active engagement of hospital, community, and public health partners. Our partners helped with donor recruitment, testing, patient advocacy, and patient availability. The program will continue to evolve as we learn more about optimizing the product. Remaining issues to be resolved are antibody titers, dose, and at what stage of disease to transfuse.

MENTAL HEALTH & RESILIENCE NEEDS

COVID-19'S IMPACT ON HEALTHCARE WORKFORCE

MENTAL HEALTH IMPACT OF COVID-19 PANDEMIC ON SPANISH HEALTHCARE WORKERS

Citation: Psychol Med. 2020 May 27:1-6. doi: 10.1017/S0033291720002019. Online ahead of print.

Level of Evidence: 3

BLUF

Using a self-reported questionnaire, a group of interdisciplinary researchers from seven universities across Spain investigated the impact of a 7-day peak during the pandemic on the mental health of 781 healthcare workers compared to 1006 non-healthcare workers. The questionnaire included the Hamilton Anxiety Score, Beck Depression Inventory, and the Acute Stress Disorder Inventory.

Results summarized below and in Table 1:

- Stress was increased in healthcare workers compared to non-healthcare workers.
- Nurses scored higher in all emotional assessments (depression, anxiety, and stress) compared to other health professionals.
- Trainee-physicians scored higher for depression than their senior colleagues.
- Finally, scores in all three assessments were higher for healthcare workers with COVID19 and for those that felt inadequately protected from potential exposure during work days.

FIGURES

	Anxiety (HARS score)*			Depression (BDI score)**			Acute Stress (ASDI score)***		
	Mean	Difference (C95%)	p	Mean	Difference (C95%)	p	Mean	Difference (C95%)	p
COVID-19									
Absent	17.51	ref		4.31	ref		4.58	ref	
Symptoms suspected	21.01	+3.50 (1.84, 4.46)	0.001	5.20	+0.89 (0.25, 1.54)	0.003	5.45	+0.35 (0.31, 1.80)	0.001
Microscopically confirmed	27.99	+11.48 (7.01, 15.26)	0.001	7.03	+1.83 (1.91, 2.25)	0.003	7.56	+0.53 (0.23, 2.80)	0.013
COVID-19 information									
Excessive	16.73	ref		4.34	+0.42 (-0.15, 0.98)	0.234	4.61	+0.38 (-0.03, 0.78)	0.170
Adequate	16.63	-0.10 (-2.35, 2.75)	1.000	3.85	ref		4.21	ref	
Inadequate	20.53	+3.49 (0.94, 6.03)	0.003	5.14	+1.20 (0.69, 1.72)	0.005	5.27	+1.02 (0.64, 1.39)	0.001
COVID-19 protection									
Absent	20.63	ref		6.55	+2.29 (0.13, 4.42)	0.039	5.90	+1.46 (0.08, 3.99)	0.065
Adequate	15.82	-3.70 (-4.78, 1.38)	0.243	3.83	ref		4.13	ref	
Insufficient	19.18	+4.20 (-0.25, 8.75)	0.022	4.85	+1.02 (0.30, 1.51)	0.001	5.02	+0.18 (0.20, 1.02)	0.050

*Ref. Reference category for comparison within variables. General linear model R squared (p value) for COVID-19, COVID-19 information and COVID-19 protection were 0.083 (<0.001), 0.077 (<0.001), and 0.059 (<0.001) respectively, adjusted by age and gender.

**Ref. Reference category for comparison within variables. General linear model R squared (p value) for COVID-19, COVID-19 protection and COVID-19 information were 0.046 (<0.001), 0.042 (<0.001), and 0.039 (<0.001) respectively, adjusted by age and gender.

***Ref. Reference category for comparison within variables. General linear model R squared (p value) for COVID-19, COVID-19 protection and COVID-19 information were 0.044 (<0.001), 0.040 (<0.001), and 0.048 (<0.001) respectively, adjusted by age and gender.

Table 1: Relation between anxiety, depression and acute stress symptoms and COVID-19, level of information and level of protection

IMPACT ON PUBLIC MENTAL HEALTH

MENTAL HEALTH IMPACTS OF COVID-19 IN IRELAND AND THE NEED FOR A SECONDARY CARE, MENTAL HEALTH SERVICE RESPONSE

Citation: Ir J Psychol Med. 2020 May 27:1-18. doi: 10.1017/ijpm.2020.64. Online ahead of print.

Level of Evidence: Other

BLUF

A letter from psychiatrists in Ireland illustrates the critical need to improve mental health interventions for COVID-19 survivors, healthcare workers, and people with existing mental health issues or intellectual disabilities (Figure 1). To mitigate these issues, the authors suggest allocating funds and increasing the number of healthcare workers staffing local mental health programs.

SUMMARY

The authors express the need to improve the infrastructure of mental health to prevent long-lasting mental health issues in the aftermath of the COVID-19 pandemic. They identified a subset of populations that are particularly vulnerable including people with existing mental or intellectual disability, COVID-19 survivors, healthcare workers, pregnant or postpartum individuals, and other socioeconomic determinant factors. They describe these patient populations and their health needs as four waves (Figure 1):

- First wave consists of patients who are COVID-19 positive.
- Second wave consists of individuals with acute healthcare needs such as myocardial infarction or first episodes of psychosis occurring during the pandemic who did not seek medical attention secondary to fear of COVID-19.

- Third wave involves people with chronic conditions such as diabetes, hypertension, and schizophrenia, who generally require regular follow-up but have been unable to receive adequate care due to the pandemic.
- Fourth wave consists of all individuals who will suffer from mental health issues as a result of COVID-19.

In conclusion, the authors report only 6% of Ireland's health budget is allocated to mental health care (compared to 12% in the UK and New Zealand). They stress the importance of increasing this budget to provide adequate care for the predicted influx of mental health issues in the coming months/years.

FIGURES

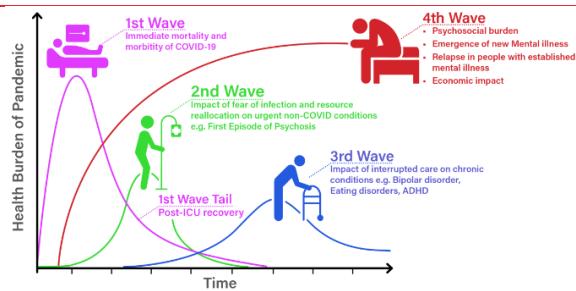


Figure 1: The four waves of health need associated with the Covid-19 pandemic

RESPONSE TO CHILDREN'S PHYSICAL AND MENTAL NEEDS DURING THE COVID-19 OUTBREAK

Citation: World J Pediatr. 2020 May 25. doi: 10.1007/s12519-020-00365-1. Online ahead of print.

Level of Evidence: Other

BLUF

This article released by the Children's Hospital at Zhejiang University School of Medicine in Shanghai explains the success of launching the Children Health Initiative for Children and Adolescents that promotes mental and physical health via internet-based interaction involving patients and experts in medicine and music to educate patients on COVID-19 and promotes physical and mental health among children and parents in the time of social isolation. The authors believe that bringing this project to a global collaborative group of experts in various fields will help address social consequences of the COVID-19 pandemic.

SILVER LININGS

WHAT SHOULD PRIMARY CARE LOOK LIKE AFTER THE COVID-19 PANDEMIC?

Citation: Aust J Prim Health. 2020 May 27. doi: 10.1071/PY20095. Online ahead of print.

Level of Evidence: Other

BLUF

A qualitative review conducted in Victoria, Australia up until April 2020 by La Trobe University explored the ways in which primary care in Australia has changed and adapted during the COVID-19 pandemic, suggesting that phone based and online primary care services that emerged to meet the needs of the pandemic will be a gateway to better delivery of primary care moving forward.

SUMMARY

The author discussed the rapid emergency of telehealth (phone based services), ehealth (online services), and streamlining of pharmacy services and specialist consultation and how these services offer an insight into what a more accessible and inclusive primary care can look like. The author goes on to suggest national or at least consolidated health hotlines where patients can be triaged according to their medical needs. In addition, the author advocates future consolidation of practices, colocation of services, and integration of on-site pharmacies to streamline delivery of health services. The streamlining of services also would protect the more austere providers who were cited as struggling to in operation prior to the pandemic. The author concludes by saying that the ad hoc development of integrated and remote services should not be lost after the end of the pandemic and that this model of healthcare should be further explored and supported.

FIGURES

COVID-19 MBS telehealth services (in place until 30 September 2020)		
Stage 1	13 March 2020	COVID MBS telehealth services commenced: Access to MBS telehealth item numbers was made available to GPs, mental health providers and medical specialists where patients or GPs were required to self-isolate or patients were considered vulnerable
Stage 2	16 March 2020	COVID MBS telehealth items expanded for midwives and obstetricians (for certain services) Expanded to recognise a general practice for continuity of care (rather than an individual GP) Announcements were made to encourage GPs to refer patients to other healthcare providers, such as psychologists and geriatricians
Stage 3	23 March 2020	COVID MBS telehealth expanded to vulnerable GPs and other vulnerable health professionals who were authorised to use telehealth item numbers and to use telehealth for all consultations with all their patients; this included healthcare providers who: <ul style="list-style-type: none">• are at least 70 years of age• are Indigenous and at least 50 years of age• are a parent of a child <12 months of age• are immune compromised• have a chronic medical condition that results in increased risk from coronavirus infection
Stage 4	30 March 2020	Telehealth items expanded to all Australians; the items have become general in nature and have no relation to diagnosing, treating or suspecting COVID-19 <ul style="list-style-type: none">- New applications for telehealth services provided by other medical specialists, nurse practitioners, mental health treatment, chronic disease management, Aboriginal and Torres Strait Islander health assessments, services to people with eating disorders, pregnancy support counselling, services to patients in aged care facilities, children with autism and after-hours consultations
Further changes	6 April 2020	Health providers could apply their usual billing practices to telehealth consultations, but the new telehealth services must be bulk billed for Commonwealth concession card holders, children <16 years of age and patients who are more vulnerable to COVID-19 New MBS telehealth and telephone services were also made available for consultant physicians, geriatricians and consultant psychiatrists
Further changes	20 April 2020	Specialist and allied health service providers were no longer required to bulk bill these new telehealth items New telehealth items were also made available for specialists and for services provided by a practice nurse or Aboriginal and Torres Strait Islander health practitioner on behalf of a medical practitioner

Table 1. Major COVID-19 telehealth changes, Source: Grattan Institute Coronavirus announcements tracker. The full list of telehealth services can be found at <http://www.mbsonline.gov.au/internet/mbsonline/publishing.nsf/Content/news-2020-03-29-latest-news-March> (accessed 30 April 2020). GP, general practitioner; MBS, Medicare Benefits Schedule

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