May 27, 2020
Daily COVID-19 Literature Surveillance Summary

All contributors acknowledged on the final page.

© 2020 | COVID19LST.org

DISCLAIMER

This free and open source document represents a good faith effort to provide real time, distilled information for guiding best practices during the COVID-19 pandemic. This document is not intended to and cannot replace the original source documents and clinical decision making. These sources are explicitly cited for purposes of reference but do not imply endorsement, approval or validation.

This is not an official product or endorsement from the institutions affiliated with the authors, nor do the ideas and opinions described within this document represent the authors' or their affiliated institutions' values, opinions, ideas or beliefs. This is a good faith effort to share and disseminate accurate summaries of the current literature.

NOW LIVE!

Daily audio summaries of the literature in 10 minutes or less.
https://www.covid19lst.org/podcast/

COVID-19 Daily Literature Surveillance

COVID19LST

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

The Swab

Jasmine Rah

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

ACKNOWLEDGEMENTS

Editorial Team
Jasmine Rah, BA, MS3*
Charlotte Archuleta, BS, MA, MS3+
Kyle Ellingsen, BS, MS3+
Brennan Enright, BS, MS1+
Thamanna Nishath, BS, MSPH, MS2+
Ann Staudinger Knoll, BS, MS1+
Michelle Arnold, BA, BS, MA, MS3·
Nour Bundogji, BA, MS3·
Allen Doan, BS, MS3·
Justin Doroshenko, M.Ed., Paramedic, MS3·
Avery Forrow, BA, MS2·
Kathleen Hanlon, BA, MS4·
Allison Hansen, BS, MS3·
Lyndsay Kandi, BS, MS3·
Sangeetha Thevuthasan, BS, MS2·
Will Smith, MD, Paramedic, FAEMS#

Recruitment
Coordinator: Jenny Jensen, MS1
Cameron Richardson, MS1
Kersti Bellardi, MS3
Zainab Khan, MS4

Executive Coordinator
Justin Doroshenko, M.Ed., Paramedic, MS3

Creative
Podcast: Stephen Farraro, MS3
Social Media: Maggie Donovan, MS1
Social Media: Courtney Roberts, MS3

Technology
Director: Wade Gordon, BS
Becky Elkins

Outreach
Benjamin Skovran, BS

Editor in Chief*, Senior Editor+, Editor·, Advisor #

Contributors
University of Arizona, College of Medicine - Phoenix
Diep Nguyen, MS3
Abel De Castro, MS1
Akshara Malla, MS4
John Michael Sherman, MS1
Julia Ghering, MS3
Julie Tran, MS3
Kylie Jenkins, MS4
Maggie Donovan, MS1
Michael Olson, MS1
Sameer Kandula, MS3
Sukhdeep Khurana, MS4
Zubair Ahmed, MS4

University of Washington, School of Medicine
Marjorie Thompson, MS2
Simran Mand, MS2
Courtney Roberts, MS3
Dax Cvancara, MS1
Jeremiah Sims, MS1
Rechel Geiger, MS1
Sara Rutz, MS1
Taylor Bozich, MS2
Amanda Nguyen, MS1

University of Arizona, College of Medicine - Tucson
Eun Hye Lee, MS3
Meleighe Sloss, MS3

Idaho College of Osteopathic Medicine
Veronica Graham, OMS1
Ryan Wertz, OMS1
Alvin Rafou, OMS1
Carter Butuk, OMS1
Kate Buhrke, OMS3

Kasturba Medical College, Manipal
Raj Shekhar, MS5

University of Southern California
Tyler Gallagher, MS1
Shayan Ebrahimian, BS, EMT

Medical University of the Americas
Sindhu Thevuthasan, MS4

University of Minnesota Medical School
Jesse Abelson, MS1

University of New England College of Osteopathic Medicine
Jonathan Baker, MS3
Dean Cataldo, MS3
Casey-John Keyes, MS1

Western University of Health Sciences College of Osteopathic Medicine
Kinza Sultan, OMS3
Danika Scott, OMS

EXECUTIVE SUMMARY

Climate

- Researchers call attention to ways the COVID-19 pandemic is unmasking healthcare disparities in two widely different groups, truck drivers and tuberculosis patients. In the words of London analysts who examined the impact on TB patients, care for these vulnerable populations should not be "sidelined".
- On a similar theme, Australian researchers discuss the ethical dilemmas around distributive justice and fair resource allocation.

Epidemiology

- Adding to the literature on liver dysfunction and COVID-19, a meta-analysis of 20 retrospective cohort studies continues to support the use of liver function tests for monitoring disease progression.
- Literature reviews and case reports continue to clarify the diagnostic and prognostic value of dermatologic findings in COVID-19.
    - Spanish researchers report the case of a 57-year old female who presented with erythema nodosum
    - Egyptian physicians postulate herpes zoster reactivation may indicate latent COVID-19.
- Out of 3,406 COVID-19 patients, those younger than 50 with BMI above 40 kg/m^2 were associated with an 11.4% increase in mortality compared to those with lower BMI (p=0.019). Patients over 50 with elevated BMI were also associated with mortality, but to a lesser extent.
    - Demonstrating that obesity over age being a stronger predictor of disease outcome

Understanding the Pathology

- A UK Biobank (UKB) to analysis of 322,948 subjects (mean age 68-years-old) found an association between the ApoE e4e4 allele and a positive COVID-19 test. Similar results were obtained after excluding patients with pre-existing conditions linked to COVID-19 severity, suggesting the ApoE e4e4 allele independently increases the risk of severe COVID-19 infection.

Transmission and Prevention

- An assessment of viral load in two COVID-19 patients in Seoul, Korea via nasopharyngeal and oropharyngeal swabs, saliva, sputum, and urine cultures using rRT-PCR found that the viral load was consistently high in saliva and relatively higher than in the oropharynx during the subclinical period which raises concerns for occult transmission.

Management

- The Asian-Pacific Association for the Study of the Liver (APASL) COVID-19 Taskforce published clinical practice guidelines for "management of liver injury, liver transplantation, autoimmune diseases, chronic liver diseases, delivery of elective and emergency services, and conduct of clinical trials" in the Asia-Pacific region during the COVID-19 pandemic

Adjusting Practice

- Today, there are guidelines for performing laparoscopic hysterectomy during the pandemic.
- A case series of 9 patients who presented to King's College Hospital in March with pulmonary embolism secondary to COVID-19 prompt clinicians to lower their threshold for ordering CT angiography in patients with prolonged history of illness and immobility, elevated D-dimer, and worsening respiratory illness.
- A retrospective observational study in Beijing found that during the pandemic, acute ischemic stroke patients exhibited on average a 40 minute longer hospital arrival to reperfusion time than before the pandemic, suggesting the need to streamline COVID-19 screening and hospital admission protocols for suspected stroke patients.

R&D

- Authors in Italy describe four patients who initially tested negative for SARS-CoV-2 infection by nasopharyngeal swab then tested positive on swabs collected a few hours later by an otolaryngologist, suggesting that inadequate swab technique may contribute to false-negative SARS-CoV-2 testing.

- A double-blind, randomized, placebo-controlled trial found shortened time to recovery in remdesivir treated patients (median 11 days compared to 15 days, P<0.001), supporting the preported therapeutic potential of remdesivir for patients with COVID-19.
- An *in-silico* modeling study by authors in India investigates chloroquine and chloroquine analogs' binding affinity to the SARS spike glycoprotein-human angiotensin converting enzyme (ACE) 2 complex with the hope of guiding novel drug development for treating COVID-19.

Mental Health & Resilience

- A study of 2,094 participants in the United States, United Kingdom, and France found that weight discrimination rather than body mass index (BMI) is a stronger predictor of a person's concern about the virus, engagement in preventative behaviors, mistrust in public health agencies in tackling the pandemic, and sense of social isolation.
    - This suggests that obesity as a risk factor for COVID-19 should be communicated in a way that does not stigmatize individuals.
- Neuropsychiatric symptoms (most commonly agitation, apathy, and aberrant motor behavior) worsened in patients previously diagnosed with Alzheimer's Disease (AD) or Amnesic Mild Cognitive Impairment (MCI) after five weeks of national lockdown in Santa Maria, Spain. There was no statistically significant change in quality of the participants or caregivers.

TABLE OF CONTENTS

COEXISTENT COVID-19 PNEUMONIA AND PULMONARY EMBOLISM: CHALLENGES IN IDENTIFYING DUAL PATHOLOGY

Citation: Thorax. 2020 May 23:thoraxjnl-2020-215011. doi: 10.1136/thoraxjnl-2020-215011. Online ahead of print.
Level of Evidence: Other

BLUF

A case report of a 53-year-old male who presented to King's College Hospital (KCH) on March 2020 for evaluation of a 2-week history of a dry cough and fever. He was admitted for respiratory failure, acute bilateral pulmonary emboli (PE), and acute respiratory distress syndrome (ARDS) and tested positive for SARS-CoV-2 on day 3 of admission. The authors also report 9 similar cases of PE associated with COVID-19 and suggest a lower threshold to perform CT angiography in patients with a prolonged history of illness and immobility, elevated D-dimer, and worsening respiratory illness.

SUMMARY

A 53-year-old male presented to King's College Hospital (KCH) in the U.K. on March 2020 with a history of a long flight 9 weeks prior and a 2-week history of dry cough and fever and admitted for respiratory failure. On presentation, he was tachypneic (respiratory rate 22), oxygen saturations were 92% on room air, and arterial blood gas demonstrated respiratory alkalosis. Chest x-ray showed bilateral infiltrates with consolidations in the right lower and upper zone. Further workup revealed normal troponin, elevated D-dimer levels (2560 ng/mL), and CT pulmonary angiogram with acute bilateral pulmonary emboli (PE) and changes suggestive of acute respiratory distress syndrome (ARDS). Patient had three nasal swabs for viral RT-PCR and on day 3 had a positive result for COVID-19. At admission, he was started on 5 days enoxaparin and discharged home on oral edoxaban on the fifth day after his respiratory function improved. The authors report 9 other similar cases demonstrating a diagnostic challenge in severe COVID-19 infection in association with PE. For this reason, they suggest a lower threshold to perform CT angiography particularly in those with a prolonged history of illness and immobility, elevated D-dimer, and lack of improvements after oxygen therapy.

FIGURES

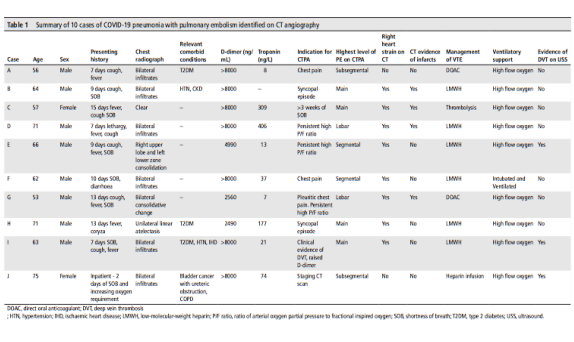
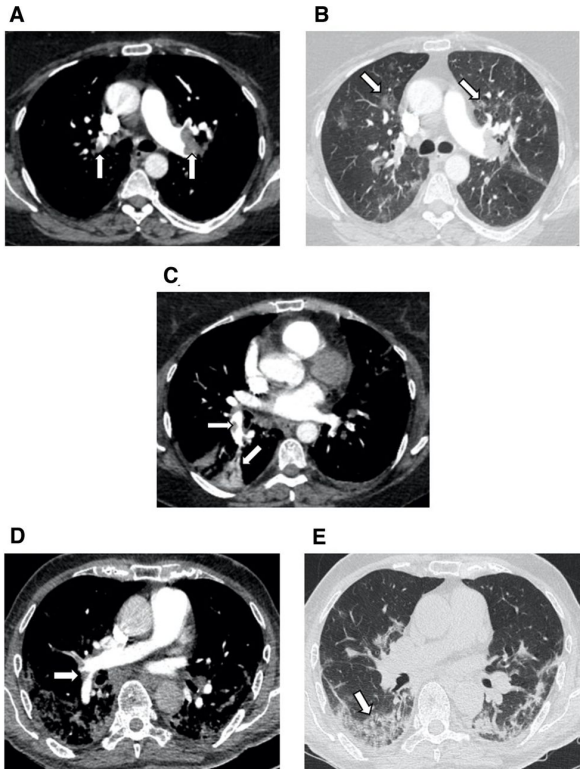


Table 1 Summary of 10 cases of COVID-19 pneumonia with pulmonary embolism identified on CT angiography

Case	Age	Sex	Presenting history	Chest radiograph	Relevant comorbid conditions	D-dimer (ng/mL)	Troponin (ng/L)	Indication for CTPA	Highest level of PE on CTPA	Right heart strain on CT	CT evidence of infarcts	Management of VTE	Ventilatory support	Evidence of DVT on USS
A	56	Male	7 days cough, fever	Bilateral infiltrates	T2DM	>8000	8	Chest pain	Subsegmental	No	No	DOAC	High flow oxygen	No
B	64	Male	9 days cough, SOB	Bilateral infiltrates	HTN, CKD	>8000	–	Syncopal episode	Main	Yes	Yes	LMWH	High flow oxygen	No
C	57	Female	15 days fever, cough SOB	Clear	–	>8000	309	>3 weeks of SOB	Main	Yes	Yes	Thrombolysis	High flow oxygen	No
D	71	Male	7 days lethargy, fever, cough	Bilateral infiltrates	–	>8000	406	Persistent high P/F ratio	Lobar	Yes	Yes	LMWH	High flow oxygen	No
E	66	Male	9 days cough, fever, SOB	Right upper lobe and left lower zone consolidation	–	4990	13	Persistent high P/F ratio	Segmental	Yes	No	LMWH	High flow oxygen	Yes
F	62	Male	10 days SOB, diarrhoea	Bilateral infiltrates	–	>8000	37	Chest pain	Segmental	Yes	No	LMWH	Intubated and Ventilated	No
G	53	Male	13 days cough, fever, SOB	Bilateral consolidative change	–	2560	7	Pleuritic chest pain. Persistent high P/F ratio	Lobar	Yes	Yes	DOAC	High flow oxygen	No
H	71	Male	13 days fever, coryza	Unilateral linear atelectasis	T2DM	2490	177	Syncopal episode	Main	Yes	No	LMWH	High flow oxygen	No
I	63	Male	7 days SOB, cough, fever	Bilateral infiltrates	T2DM, HTN, IHD	>8000	21	Clinical evidence of DVT, raised D-dimer	Main	Yes	No	LMWH	High flow oxygen	Yes
J	75	Female	Inpatient – 2 days of SOB and increasing oxygen requirement	Bilateral infiltrates	Bladder cancer with ureteric obstruction, COPD	>8000	74	Staging CT scan	Subsegmental	No	No	Heparin infusion	High flow oxygen	Yes

DOAC, direct oral anticoagulant; DVT, deep vein thrombosis
; HTN, hypertension; IHD, ischaemic heart disease; LMWH, low-molecular-weight heparin; P/F ratio, ratio of arterial oxygen partial pressure to fractional inspired oxygen; SOB, shortness of breath; T2DM, type 2 diabetes; USS, ultrasound.

Figure 1:Demographics and findings of 10 patients with pulmonary embolism and COVID-19 pneumonia in March 2020.



AMYOTROPHIC LATERAL SCLEROSIS CARE AND RESEARCH IN THE USA DURING THE COVID-19 PANDEMIC: CHALLENGES AND OPPORTUNITIES

Citation: Muscle Nerve. 2020 May 23. doi: 10.1002/mus.26989. Online ahead of print.
Level of Evidence: 3

BLUF

A survey administered to 133 amyotrophic lateral sclerosis (ALS) clinical centers across the United States who are members of the Northeast ALS (NEALS) Consortium from April 21 to May 1, 2020 found that many physicians have had to adjust care for patients with ALS by utilizing telemedicine, reducing enrollment in research studies, and decreasing treatments such as spirometry (Tables 1-3). This article suggests that continuing to develop telemedicine utilization may be useful in improving care and research opportunities for patients with ALS.

ABSTRACT

COVID-19 has created unprecedented challenges for amyotrophic lateral sclerosis (ALS) clinical care and research in the United States. Traditional evaluations for making an ALS diagnosis, measuring progression, and planning interventions rely on in-person visits that may now be unsafe or impossible. Evidence- and experience-based treatment options such as multidisciplinary team care, feeding tubes, wheelchairs, home health and hospice have become more difficult to obtain and in some places are unavailable. Additionally, the pandemic has impacted ALS clinical trials by impairing the ability to obtain measurements for trial eligibility, to monitor safety and efficacy outcomes, and to dispense study drug since these also often rely on in-person visits. We review opportunities for overcoming some of these challenges through telemedicine and novel measurements. These can re-optimize ALS care and research in the current setting and during future events that may limit travel and face to face interactions. This article is protected by copyright. All rights reserved.

FIGURES

	New Patients Number Offering (%)	Return Patients Number Offering (%)
In Person	41 (67%)	32 (53%)
Video (In Any State)	18 (29%)	34 (56%)
Video (In Some But Not All States)	14 (23%)	19 (31%)
Video (In My State)	38 (62%)	42 (69%)
Phone	25 (41%)	53 (87%)
Not Able To Offer	2 (3%)	0 (0%)

Table 1. Options for Evaluation of New and Return Clinic Patients at NEALS Sites

Option	Sites Reporting Difficulty (%)
Spirometry	42 (69%)
Feeding Tubes	21 (34%)
Multi-Disciplinary Team Care	20 (33%)
Wheelchairs	14 (23%)
Home Health/Hospice	11 (18%)
Ventilators	6 (10%)
Lifts	6 (10%)
Hospital Beds	1 (2%)
None (Can Get Everything I Need)	10 (16%)

Table 3.Options for Research Patients at NEALS Sites

	Number Offering (%)
New Enrollments In Person	12 (20%)
New Enrollments By Phone Or Video	15 (25%)

Follow Ups In Person	24 (39%)
Follow Ups By Phone Or Video (In Any State)	31 (51%)
Follow Ups By Phone Or Video (In Some But Not All States)	11 (18%)
Follow Ups By Phone Or Video (In My State)	28 (46%)
Unable To See Any Research Patients	13 (21%)

Table 3. Options for Research Patients at NEALS Sites

THE COVID-19 PANDEMIC: A "TECH"-TONIC SHIFT TOWARD VIRTUAL DIABETES CARE

Citation: J Diabetes Sci Technol. 2020 May 25:1932296820929719. doi: 10.1177/1932296820929719. Online ahead of print.
Level of Evidence: Other

BLUF

A physician from the Mary & Dick Allen Diabetes Center in Newport, CA describes his shifting experience caring for diabetes patients through the pandemic as large group, in person classes transitioned to 1:1 virtual visits. He describes challenges of telemedicine including the heavy reliance on patient data that is inconsistently available. Despite the challenges, he is hopeful that telemedicine will boom after the pandemic is over and play a key role in the management of diabetes due to the forced advancement of online health care system delivery models.

SUMMARY

The article describes the shift toward telemedicine during the COVID-19 pandemic. At the Mary & Dick Allen Diabetes Center in Newport, CA, patients often attended in-person diabetes education classes. However, these group classes became more limited by mid-March and were eventually cancelled as social distancing became more urgent. As a result, the diabetes center converted to 1:1 video calls with patients instructed to upload their glucose levels for routine management. However, challenges in getting the data uploaded occurred due to lack of access, compliance, or means. The author concludes with the silver lining that due to the challenges faced in COVID-19, there has been a "forced system-wide reboot of health care delivery models" which may ultimately cause telemedicine to play a key role in diabetes care in the future.

ADAPTATIONS AND MODIFICATIONS IN THE TECHNIQUE OF LAPAROSCOPIC HYSTERECTOMY WITH BILATERAL ADNEXECTOMY IN THE TIME OF COVID-19

Citation: Int J Gynecol Cancer. 2020 May 23:ijgc-2020-001574. doi: 10.1136/ijgc-2020-001574. Online ahead of print.
Level of Evidence: Other

BLUF

A group of OB/GYN physicians from Argentina created a video showing their expert surgical technique and technical resources used for preventing the spread of COVID-19 during laparoscopic hysterectomy. The video covers three main domains:

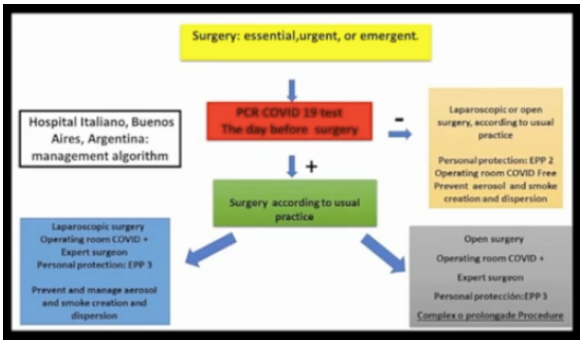
1) Surgical maneuvers used to perform a safe laparoscopic hysterectomy

2) Management algorithm used at a university hospital in Argentina (Figure 1)

3) Resources used to avoid aerosolization of COVID-19: placement of smoke filters, working at low pneumoperitoneum pressures, technical variant during colpectomy, trocar extraction after evacuation of the pneumoperitoneum

Link to video:
https://brightcove.hs.llnwd.net/v1/uds/pd/2696240571001/202005/3560/2696240571001_6156869520001_6156868944001.mp4?pubId=2696240571001&videoId=6156868944001

FIGURES



IMPACT OF THE COVID-19 PANDEMIC ON THE PROCESS AND OUTCOME OF THROMBECTOMY FOR ACUTE ISCHEMIC STROKE

Citation: J Neurointerv Surg. 2020 May 25:neurintsurg-2020-016177. doi: 10.1136/neurintsurg-2020-016177. Online ahead of print.
Level of Evidence: Other

BLUF

A retrospective observational study conducted at Xuanwi Hospital in Beijing, China compared all acute ischemic stroke (AIS) patients who presented to a comprehensive stroke center between January 23, 2020 and March 7th, 2020 to pre-pandemic AIS patients. Analysis shows pandemic group patients having significantly longer hospital arrival to puncture times (174 vs. 125.5 min; p=0.002) and longer hospital arrival to reperfusion times (213 vs 172 min; p=0.047) (Table 2). However, the data shows no significant difference in the rates of successful reperfusion between the two groups (OR 0.971, 95% CI 0.785-1.203). These results, in combination with stringent national COVID-19 screening guidelines for hospitals, suggest that streamlining COVID-19 screening for suspected stroke patients presenting to large hospitals could help ameliorate the impact of the pandemic on time to intervention in AIS patients.

ABSTRACT

BACKGROUND: The novel coronavirus disease 2019 (COVID-19) pandemic is still spreading across the world. Although the pandemic has an all-round impact on medical work, the degree of its impact on endovascular thrombectomy (EVT) for patients with acute ischemic stroke (AIS) is unclear. METHODS: We continuously included AIS patients with large artery occlusion who underwent EVT in a comprehensive stroke center before and during the Wuhan shutdown. The protected code stroke (PCS) for screening and treating AIS patients was established during the pandemic. The efficacy and safety outcomes including the rate of successful reperfusion (defined as modified Thrombolysis In Cerebral Infarction (mTICI) graded 2b or 3) and time intervals for reperfusion were compared between two groups: pre-pandemic and pandemic. RESULTS: A total of 55 AIS patients who received EVT were included. The baseline characteristics were comparable between the two groups. The time from hospital arrival to puncture (174 vs 125.5 min; p=0.002) and time from hospital arrival to reperfusion (213 vs 172 min; p=0.047) were significantly prolonged in the pandemic group compared with the pre-pandemic group. The rate of successful reperfusion was not significantly different between the two groups (85.7% (n=18) vs 88.2% (n=30); OR 0.971, 95% CI 0.785 to 1.203; p=1.000). CONCLUSION: The results of this study suggest a proper PCS algorithm which combines the COVID-19 screening and protection measures could decrease the impact of the disease on the clinical outcomes of EVT for AIS patients to the lowest extent possible during the pandemic.

FIGURES

Table 2 Procedural details and clinical outcomes of EVT for AIS patients in pre-pandemic and pandemic groups

	Pre-pandemic group	Pandemic group	OR (95% CI)	P value
mTICI 2b–3, n (%)	30 (88.2)	18 (85.7)	0.971 (0.785 to 1.203)	1.000
Local anesthesia, n (%)	23 (67.6)	18 (85.7)	1.267 (0.947 to 1.695)	0.240
ADAPT as the first choice, n (%)	10 (29.4)	9 (42.9)	1.457 (0.711 to 2.987)	0.308
Solumbra as the first choice, n (%)	18 (52.9)	10 (47.6)	0.899 (0.519 to 1.558)	0.701
Stent retriever as the first choice, n (%)	3 (8.8)	0	NA	0.279
Rescue treatment, n (%)	10 (29.4)	5 (23.8)	0.810 (0.321 to 2.043)	0.650
Balloon angioplasty, n (%)	4 (11.8)	4 (19.0)	1.619 (0.453 to 5.792)	0.464
Stent placement, n (%)	8 (23.5)	1 (4.8)	0.202 (0.027 to 1.505)	0.146
Hospital arrival to puncture time, median (IQR), min	125.5 (113–153)	174 (139–204)	NA	0.002
Puncture to reperfusion time, median (IQR), min	40.5 (28.5–55.5)	32 (28–43)	NA	0.231
Hospital arrival to reperfusion time, median (IQR), min	172 (148–218.5)	213 (177–256)	NA	0.047
Onset to reperfusion time, median ±SD, min	478.28±160.6	511.68±213.54	NA	0.529
24 hours NIHSS score, median (IQR)	14 (6–40)	10 (6–40)	NA	0.380
72 hours NIHSS score, median (IQR)	8 (5–14)	8 (4–21)	NA	0.675
Overall adverse events, n (%)	12 (35.3)	6 (28.6)	0.810 (0.358 to 1.829)	0.606
Subarachnoid hemorrhage, n (%)	3 (8.8)	4 (19.0)	2.159 (0.535 to 8.707)	0.408
All intracranial hemorrhage, n (%)	9 (26.5)	3 (14.3)	0.540 (0.165 to 1.770)	0.467
Hemorrhagic transformation, n (%)	7 (20.6)	2 (9.5)	0.463 (0.106 to 2.021)	0.482

ADAPT, a direct aspiration first pass technique; AIS, acute ischemic stroke; EVT, endovascular thrombectomy; IQR, interquartile range (25–75%); mTICI, modified Thrombolysis In Cerebral Infarction; NA, not applicable.

Table 2: Procedural details and clinical outcomes of EVT for AIS patients in pre-pandemic and pandemic groups

LOUD AND SILENT EPIDEMICS IN THE THIRD MILLENNIUM: TUNING-UP THE VOLUME

Citation: Int Orthop. 2020 May 25. doi: 10.1007/s00264-020-04608-8. Online ahead of print.
Level of Evidence: Other

BLUF

The authors argue that extensive media coverage of COVID-19 has helped to create public awareness and guide policy decisions despite the fact that there are other pandemics past and present that warrant this kind of attention, including secondary surgical site infections that carry a 5-10% mortality rate and affect nearly 18 million people per year. The authors suggest orthopedic surgeons refocus their time and work on increasing awareness about these silent epidemics to get the attention of governing institutions.

ABSTRACT

The media play a key role in promoting public health and influencing debate regarding health issues; however, some topics seem to generate a stronger response in the public, and this may be related to how the media construct and deliver their messages. Mass media coverage of COVID-19 epidemic has been exceptional with more than 180,000 articles published each day in 70 languages from March 8 to April 8, 2020. One may well wonder if this massive media attention ever happened in the past and if it has been finally proven to be beneficial or even just appropriate. Surgical site and implant-related infections represent a substantial part of health care-associated infections; with an estimated overall incidence of 6% post-surgical infection, approximately 18 million new surgical site infections are expected each year globally, with 5 to 10% mortality rate and an astounding economic and social cost. In the current mediatic era, orthopaedic surgeons need to refocus some of their time and energies from surgery to communication and constructive research. Only raising mediatic awareness on surgical site and implant-related infections may tune up the volume of silent epidemics to a level that can become audible by governing institutions.

THE IMPACT OF COVID-19 PANDEMIC ON UROLOGICAL EMERGENCIES: A SINGLE-CENTER EXPERIENCE

Citation: World J Urol. 2020 May 23. doi: 10.1007/s00345-020-03264-2. Online ahead of print.
Level of Evidence: 3

BLUF

A retrospective review examined urology consultations, invasive urology procedures, and urology-related hospital admissions during February 22 to March 30, 2020 compared to February 24 to March 31, 2019 at the Padua University Hospital in Italy. Results showed a statistically significant decrease in the number of daily consultations (7.33 vs 2.97, p<0.001) and daily invasive procedures (p=0.006) in 2020 compared to 2019, with no statistically significant difference in the number of daily admissions (15 vs 12, p=0.80; Figure 1), highlighting the impacts of the COVID-19 pandemic on urology practice.

ABSTRACT

PURPOSE: COVID-19 pandemic represents a novel challenge for healthcare systems, and it affects even the daily urological practice. Italy was the first country after China to experience a lock-down period. Our objective is to determine whether, during the COVID-19 period, there has been any modification in urological emergencies. METHODS: we retrospectively reviewed urgent urological consultations requested by the Emergency Department (ED) of Padua University Hospital in the 36-day period between February 22nd and March 30th, 2020 and compared them to the prior year cases within a similar time frame (February 24th to March 31st, 2019). Pediatric population (age < 15 years); surgical complications and traumas were excluded to avoid confounding from the reduction of activities during the lockdown. The number of daily consultations, the number of invasive procedures performed and admissions were evaluated, together with the predictors of admission were identified through multivariate logistic regression models. RESULTS: The final sample resulted in 107 consultations performed in 2020 and 266 in 2019. A higher number of daily consultations was performed during 2019 (7.33 vs 2.97, p < 0.001). Similarly, the number of daily-invasive procedures was higher in 2019 (p = 0.006), while there was no difference in the number of daily admissions (15 vs 12, p = 0.80). On multivariate analysis, the year (2020 vs 2019, OR 2.714, 95% CI 1.096-6.757, p = 0.0297) was a significant predictor of admission. CONCLUSIONS: Urgent urology practice was affected during COVID-19 pandemic with a remarkable reduction in urgent urological consultations; furthermore, a higher risk of admissions was observed in 2020. The consequences of a potentially delayed diagnosis remain to be determined.

FIGURES

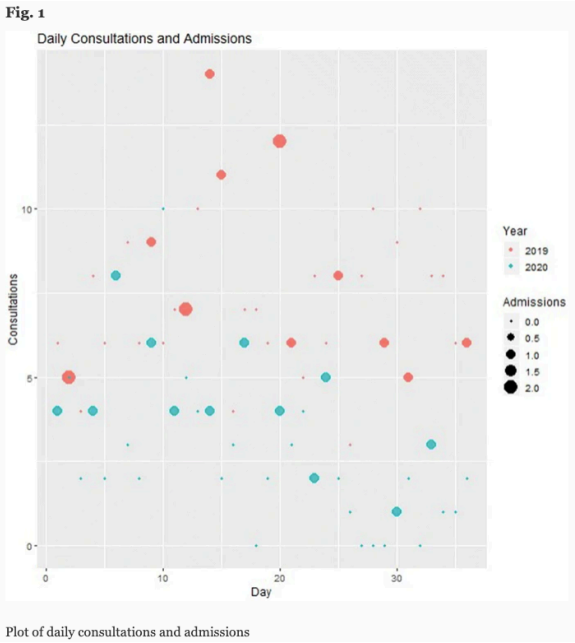


Figure 1.Plot of daily consultations and admissions

CONSTRUCTION OF 5G ALL-WIRELESS NETWORK AND INFORMATION SYSTEM FOR CABIN HOSPITAL

Citation: J Am Med Inform Assoc. 2020 May 24:ocaa045. doi: 10.1093/jamia/ocaa045. Online ahead of print.
Level of Evidence: Other

BLUF

Experts in computer management in Wuhan, China describe the process by which they successfully developed and implemented a 5G network via a virtual private network (VPN) tunnel to provide internet coverage to more than 20 emergency cabin hospitals in Wuhan in response to the COVID-19 pandemic. The deployment of a 5G + VPN system in this context may serve as a model for providing 5G internet coverage to cabin hospitals or other essential infrastructure in future emergency situations.

ABSTRACT

The epidemic of coronavirus disease 2019 (COVID-19) broke out in Wuhan, China, in early 2020. In an effort to curb the spread of the epidemic, the government has requisitioned a variety of venues and plant buildings and built more than 20 cabin hospitals to receive patients with mild symptoms within 48 hours. Under this circumstance, we worked out a 5G all-wireless solution to divide the overall network system of the cabin hospital into multiple network units by function. While ensuring good signal coverage of the local unit, each network unit was independently connected to the host hospital's data center over a virtual private network (VPN) tunnel built on the 5G wireless network. Our successful experience with the application of this 5G + VPN all-wireless network system well points to the bright prospect of 5G wireless network. In addition, the 5G + VPN solution can also be used for multihospital network interconnection and rapid network recovery during the failure of wired network.

FIGURES

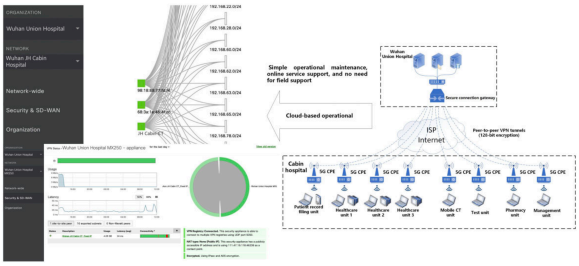


Figure 1. Architecture of the 5G all-wireless network.

DISTRIBUTIVE JUSTICE DURING THE COVID-19 PANDEMIC IN AUSTRALIA

Citation: ANZ J Surg. 2020 May 26. doi: 10.1111/ans.16069. Online ahead of print.
Level of Evidence: Other

BLUF

Authors affiliated with the University of Sydney in New South Wales, Australia discuss the ethical dilemma around distributive justice and fair resource allocation (ie., ICU beds and ventilators) during the COVID-19 pandemic. They conclude by advocating that their readers have an open discussion about the utilization of health care resources for patients with COVID-19.

SUMMARY

The COVID-19 pandemic has raised several ethical issues regarding patient care, such as distributive justice. The authors define distributive justice as "the fair and appropriate distribution of benefits, risks and costs within a society." In the medical context, these resources refer to the ICU beds, ventilators, and elective surgeries that ultimately affect a patient's morbidity and mortality. Although the Australian health care system put in an effort to prepare for the high volume of patients with COVID-19, the delivery and fair distribution of care is still challenged. This is especially true for the numerous patients who require intubation and mechanical ventilation despite limited supply. Questions are also raised about the benefit of withholding elective surgeries from patients that require them, such as those diagnosed with pending malignancy. The authors conclude by advocating for an open discussion among readers about these ethical issues and how to best utilize health care resources.

CLIMATE > DISPARITIES

A NOVEL COVID-19 BASED TRUCK DRIVER SYNDEMIC? IMPLICATIONS FOR PUBLIC HEALTH, SAFETY, AND VITAL SUPPLY CHAINS

Citation: Am J Ind Med. 2020 May 26. doi: 10.1002/ajim.23138. Online ahead of print.
Level of Evidence: Other

BLUF

Industry researchers in Texas and Florida consider the case that long-haul truck drivers may be a vulnerable group during the COVID-19 pandemic due to advanced age, underlying health issues and increased geographical mobility compared to the general US population. This, in addition to their essential role in supply chain maintenance, leads the authors to a call for studies to better understand COVID-19 risks and their implications within this unique group.

ABSTRACT

U.S. long-haul truck drivers traverse great distances and interact with numerous individuals, rendering them vulnerable to acquiring and transmitting coronavirus disease 2019 (COVID-19). Together, the unique co-occurrence of pronounced health disparities and known COVID-19 infection, morbidity, and mortality risks suggest the possibility of a novel COVID-19 based truck driver syndemic due to advanced driver age and endemic health issues. In turn, COVID-19 sequelae may perpetuate existing health disparities. The co-occurrence of afflictions may also result in compromised safety performance. To curb the likelihood of a COVID-19 based truck driver syndemic, several action stepsare needed. First, key COVID-19 metrics need to be established for this population. Second, relationships between long-haul trucker network attributes and COVID-19 spread need to bedelineated. Third, mutually reinforcing interactions between endemic health disparities and COVID-19 vulnerability need to be elucidated. Finally, grounded in the aforementioned steps, policies and interventions need to be identified and implemented.

ANTICIPATING THE IMPACT OF THE COVID-19 PANDEMIC ON TB PATIENTS AND TB CONTROL PROGRAMMES

Citation: Ann Clin Microbiol Antimicrob. 2020 May 23;19(1):21. doi: 10.1186/s12941-020-00363-1.
Level of Evidence: Other

BLUF

In this commentary, the authors shed light on the necessity to proactively institute plans for mitigating tuberculosis burden around the world. The authors express concern that as the COVID-19 pandemic overwhelms healthcare systems, fewer resources are being applied to prevention, diagnostic, and treatment programs for TB patients. They conclude that TB patient care must not be "sidelined" during the pandemic and express hope that this pandemic is an opportunity to address stigma against tuberculosis patients and the need for infectious disease support, especially in low and middle income countries.

ABSTRACT

The COVID-19 pandemic has currently overtaken every other health issue throughout the world. There are numerous ways in which this will impact existing public health issues. Here we reflect on the interactions between COVID-19 and tuberculosis (TB), which still ranks as the leading cause of death from a single infectious disease globally. There may be grave consequences for existing and undiagnosed TB patients globally, particularly in low and middle income countries (LMICs) where TB is endemic and health services poorly equipped. TB control programmes will be strained due to diversion of resources, and an inevitable loss of health system focus, such that some activities cannot or will not be prioritised. This is likely to lead to a reduction in quality of TB care and worse outcomes. Further, TB patients often have underlying co-morbidities and lung damage that may make them prone to more severe COVID-19. The symptoms of TB and COVID-19 can be similar, with for example cough and fever. Not only can this create diagnostic confusion, but it could worsen the stigmatization of TB patients especially in LMICs, given the fear of COVID-19. Children with TB are a vulnerable group especially likely to suffer as part of the "collateral damage". There will be a confounding of symptoms and epidemiological data through co-infection, as happens already with TB-HIV, and this will require unpicking. Lessons for COVID-19 could be learned from the vast experience of running global TB control programmes, while the astonishingly rapid and relatively well co-ordinated response to COVID-19 demonstrates how existing programmes could be significantly improved.

CORONAVIRUS DISEASE (COVID-19): AN UPDATED REVIEW BASED ON CURRENT KNOWLEDGE AND EXISTING LITERATURE FOR DERMATOLOGISTS

Citation: Dermatol Ther. 2020 May 24. doi: 10.1111/dth.13677. Online ahead of print.
Level of Evidence: Other

BLUF

Dermatologists in India conduct a review of the literature on COVID-19. In addition to highlighting the currently known aspects of COVID-19 and SARS-CoV-2, the authors identify reports of COVID-19 patients with a variety of dermatologic findings. They note patients may present with both a variety of acute manifestations or exacerbation of chronic dermatologic conditions (rosacea, eczema, atopic dermatitis, and neurodermatitis).

ABSTRACT

The world entered the year 2020 with reports of the emergence of a new viral illness in Wuhan city, Hubei province, China. In January 2020, severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) was identified to be the causative novel coronavirus for the cluster of patients suffering from pneumonia in China. The disease was later named as coronavirus disease (COVID-19) and was declared a pandemic by the World Health Organization on March 11, 2020. Several studies, since then, have tried to study and explain the origin of SARS-CoV-2, its structure and pathogenicity, epidemiology, modes of transmission, spectrum of illness and causes of mortality and morbidity. The current management strategies focus on supportive care and prevention of complications. With no definite treatment, as of now, encouraging reports of some anti-viral and anti-malarial drugs in the management of COVID-19 generate some hope. This review intends to cover the current known aspects of COVID-19 and SARS-CoV-19, based on the available literature.

THE USE OF DECISION MODELLING TO INFORM TIMELY POLICY DECISIONS ON CARDIAC RESOURCE CAPACITY DURING THE COVID-19 PANDEMIC

Citation: Can J Cardiol. 2020 May 21:S0828-282X(20)30503-1. doi: 10.1016/j.cjca.2020.05.024. Online ahead of print.
Level of Evidence: Other

BLUF

Resource utilization and allocation during the COVID-19 pandemic in Ontario, Canada was modelled using a decision analytic tool to provide decision makers with possible future scenarios and help with difficult decisions, particularly the suspension of non-essential medical procedures. The authors highlight how COVID-19 patients and cardiovascular patients each competed for shared resources, and that in the first response to the pandemic resources were left unused. They highlight the importance of modelling rapidly evolving data to help guide policy decisions to help balance difficult trade-offs in resource allocation to COVID-19 patients and non-COVID-19 patients.

SUMMARY

The authors study the effect of policies put into place in Ontario, Canada after March 16th, 2020, which halted non-essential medical procedures, including scheduled outpatient cardiac surgical and interventional procedures, in anticipation of a COVID-19 surge. After adapting the COVID-19 Resource Estimator (CORE) decision analytic model to include a cardiac portion, they simulated the daily hospital resource utilization of COVID-19 patients as well as utilization of resources for cardiovascular procedures such as coronary bypass grafting which typically have a poor outcome when left untreated. Their work covers three phases of the pandemic:
-Phase 1: The initial “crisis” phase modelled the worst-case scenario which led to the immediate cessation of all elective outpatient cardiac procedures and surgeries
-Phase 2: The epidemiology pattern showed Ontario would not reach the worse-case scenario, and the model was adjusted to take this into account. This led to a change in policy, allowing scheduled outpatient cardiac procedures for those at highest risk of mortality to resume, based in local resources
-Phase 3: The “recovery” phase, is on-going and taking into account real-world data, with the recognition that multiple waves of the pandemic may occur
The authors conclude that decision analytic modeling tools must take into account rapidly evolving data so that policy can be updated and changed to ensure no resources are wasted.

ABSTRACT

In Ontario, on March 16th, 2020, a directive was issued to all acute care hospitals to halt non-essential procedures in anticipation for a potential surge in COVID-19 patients. This included scheduled outpatient cardiac surgical and interventional procedures that required the use of intensive care units, ventilators, and skilled critical care personnel, given that these procedures would draw from the same pool of resources required for critically ill COVID-19 patients. We adapted the COVID-19 Resource Estimator (CORE) decision analytic model by adding a cardiac component to determine the impact of various policy decisions on the incremental waitlist growth and estimated waitlist mortality for three key groups of cardiovascular disease patients; coronary artery disease, valvular heart disease, and arrhythmias. We provided predictions based on COVID-19 epidemiology available in real-time, in 3 phases. First, in the initial crisis phase, in a worst case scenario, we showed that the potential number of waitlist related cardiac deaths would be orders of magnitude less than those who would die of COVID-19 if critical cardiac care resources were diverted to the care of COVID-19 patients. Second, with better local epidemiology data, we predicted that across five regions of Ontario, there may be insufficient resources to resume all elective outpatient cardiac procedures. Finally in the recovery phase, we showed that the estimated incremental growth in waitlist for all cardiac procedures is likely substantial. These outputs informed timely, data-driven decisions during the COVID-19 pandemic regarding the provision of cardiovascular care.

EPIDEMIOLOGY > SYMPTOMS AND CLINICAL PRESENTATION

THE ROLE OF SELF-REPORTED SMELL AND TASTE DISORDERS IN SUSPECTED COVID-19

Citation: Eur Arch Otorhinolaryngol. 2020 May 23. doi: 10.1007/s00405-020-06069-6. Online ahead of print.
Level of Evidence: 1

BLUF

A systematic review was conducted by authors in Greece which evaluated anosmia as a potential screening symptom and included a total of 24 studies in the analysis. The prevalence of anosmia noted to be greater in COVID-19 positive patients compared to other respiratory infections.

ABSTRACT

PURPOSE: The sudden onset of smell and taste loss has been reported as a symptom related to COVID-19. There is urgent need to provide insight to the pandemic and evaluate anosmia as a potential screening symptom that might contribute to the decision to test suspected cases or guide quarantine instructions. METHODS: Systematic review of the PubMed/Medline, Cochrane databases and preprints up to May 3, 2020. Combined search terms included: "COVID-19", "SARS-CoV-2", "coronavirus", "nose", "anosmia", "hyposmia", "olfactory loss", "smell loss", "taste loss", and "hypogeusia". RESULTS: Our search identified 18 reviewed articles and 6 manuscript preprints, including a large epidemiological study, four observational case series, five case-controlled studies, five cross-sectional studies, five case series of anosmic patients and four electronic surveys. Great methodological differences were noted. A significant prevalence of anosmia is reported in COVID-19 patients. Controlled studies indicate that anosmia is more common in COVID-19 patients than in patients suffering from other viral infections or controls. Most of the studies reported either smell loss or smell plus taste loss. Less severe COVID-19 disease is related to a greater prevalence of anosmia. A quick recovery of the smell loss may be expected in most COVID-19 cases. CONCLUSION: Anosmia is more prevalent in COVID-19 patients than in patients suffering from other respiratory infections or controls.

COVID-19 AND LIVER DYSFUNCTION: A SYSTEMATIC REVIEW AND META-ANALYSIS OF RETROSPECTIVE STUDIES

Citation: J Med Virol. 2020 May 23. doi: 10.1002/jmv.26055. Online ahead of print.
Level of Evidence: 2

BLUF

This meta-analysis of 20 retrospective cohort studies (through 4/16/2020) conducted by Tulane University in New Orleans, Louisiana found that severe cases of COVID-19 showed elevated aspartate aminotransferase/alanine transaminase, increased prothrombin time, and elevated bilirubin. The authors suggest measurement of liver function tests can be used to monitor progression of disease and imply that worsening liver function tests can be an early indicator of disease progression.

ABSTRACT

BACKGROUND: Recently, Coronavirus Disease 2019 (COVID-19) pandemic is the most significant global health crisis. In this study, we conducted a meta-analysis to find the association between liver injuries and the severity of COVID-19 disease. METHODS: Online databases, including PubMed, Web of Science, Scopus, and Science direct, were searched to detect relevant publications up to April 16, 2020. Depending on the heterogeneity between studies, a fixed- or random-effects model was applied to pool data. Publication bias Egger's test was also performed. RESULTS: Meta-analysis of 20 retrospective studies (3428 patients), identified that patients with a severe manifestation of COVID-19 exhibited significantly higher levels of alanine aminotransferase, aspartate aminotransferase, and bilirubin values with prolonged prothrombin time. Furthermore, lower albumin level was associated with a severe presentation of COVID-19. CONCLUSION: Liver dysfunction was associated with a severe outcome of COVID-19 disease. Close monitoring of the occurrence of liver dysfunction is beneficial in early warning of unfavorable outcomes.

CHRONOLOGICAL CHANGES OF VIRAL SHEDDING IN ADULT INPATIENTS WITH COVID-19 IN WUHAN, CHINA

Citation: Clin Infect Dis. 2020 May 23:ciaa631. doi: 10.1093/cid/ciaa631. Online ahead of print.

Level of Evidence: 4

BLUF

This retrospective study conducted at Renmin Hospital of Wuhan University between January 11 to February 21, 2020 tracked series of viral loads in 308 patients hospitalized with COVID-19 for a total of 2,475 specimens. Viral load was detected by real-time reverse transcriptase PCR of several types of samples including nasal and pharyngeal swabs, and bronchoalveolar lavage. They separated the cases into general, severe and critical groups based on symptom severity. Significant findings are reported below.

- Higher viral loads correlated with worsening disease severity
- Highest viral loads were found in sputum samples as compared to nasal or pharyngeal swab (Fig 1)
- The virus is detectable in stool samples for much longer than nasopharyngeal swabs
- Viral loads peak within the first few days after admission, but decrease rapidly with antiviral treatment
- Viral rebound was more common in patients with less severe disease
- Decreased basophil, eosinophils, T-cells and lymphocytes are a common feature of COVID-19 patients
- Myocardial enzymes (including N-terminal pro-brain natriuretic peptide), LDH, serum albumin, and calcium levels were significantly increased in patients with high viral load

ABSTRACT

BACKGROUND: In December 2019, the coronavirus disease 2019 (COVID-19) caused by severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) broke out in Wuhan. Epidemiological and clinical characteristics of patients with COVID-19 have been reported, but the relationships between laboratory features and viral load has not been comprehensively described. METHODS: Adult inpatients (>=18 years old) with COVID-19 who underwent multiple (>= 5 times) nucleic acid tests with nasal and pharyngeal swabs were recruited from Renmin Hospital of Wuhan University, including general patients (n=70), severe patients (n=195) and critical patients (n=43). Laboratory data, demographic and clinical data were extracted from electronic medical records. The fitted polynomial curve was used to explore the association between serial viral loads and illness severity. RESULTS: Viral load of SARS-CoV-2 peaked within the first few days (2-4 days) after admission, then decreased rapidly along with virus rebound under treatment. Critical patients had the highest viral loads, in contrast to the general patients showing the lowest viral loads. The viral loads were higher in sputum compared with nasal and pharyngeal swab (p=0.026). The positive rate of respiratory tract samples was significantly higher than that of gastrointestinal tract samples (p<0.001). The SARS-CoV-2 viral load was negatively correlated with portion parameters of blood routine and lymphocyte subsets, and was positively associated with laboratory features of cardiovascular system. CONCLUSIONS: The serial viral loads of patients revealed whole viral shedding during hospitalization and the resurgence of virus during the treatment, which could be used for early warning of illness severity, thus improve antiviral interventions.

FIGURES

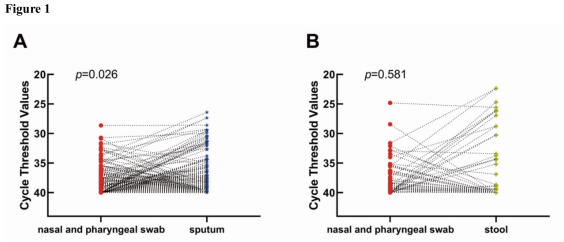


Figure 1. The viral load in different specimens from inpatients with COVID-19. Comparison of the viral load between nasal and pharyngeal swab and sputum (A), stool (B) from the same patients in the same day. Red means nasal and pharyngeal swab samples, blue means sputum samples and yellow means stool samples.

HERPES ZOSTER MIGHT BE AN INDICATOR FOR LATENT COVID 19 INFECTION

Citation: Dermatol Ther. 2020 May 23:e13666. doi: 10.1111/dth.13666. Online ahead of print.
Level of Evidence: 4

BLUF

A group of physicians in Egypt present two adult cases of a vesicular cutaneous manifestation of herpes zoster (HZ) virus preceding mild, delayed COVID-19 symptoms that prompted testing and diagnosis of COVID-19 by nasopharyngeal smear (Figures 1–3). These positive tests led the authors to posit COVID-19-mediated activation of HZ, though they acknowledge further investigation is needed.

ABSTRACT

Various cutaneous manifestations have been observed in patients with COVID-19 infection. Herpes Zoster is a viral skin disease caused by varicella zoster that remains dormant in the dorsal root ganglia of cutaneous nerves following a primary chicken pox infection. In this report we describe two cases COVID infection who first presented with herpes zoster. We are here by suggesting that the clinical presentation of HZ at the time of the current pandemic even in patients giving mild or no suggestive history of upper respiratory symptoms should be considered as an alarming sign for a recent subclinical SARS CoV2 infection.

FIGURES

Figure 2. Female patient with blisters on her chest

Figure 3. Female patient with zosteriform rash on her nape of the neck

Figure 3. Female patient with zosteriform rash on her nape of the neck

EPIDEMIOLOGY > SYMPTOMS AND CLINICAL PRESENTATION

DIAGNOSTIC AND PROGNOSTIC VALUES OF CUTANEOUS MANIFESTATIONS IN COVID-19

Citation: Dermatol Ther. 2020 May 23:e13650. doi: 10.1111/dth.13650. Online ahead of print.
Level of Evidence: Other

BLUF

Dermatologists from Bangkok, Thailand perform a literature review on cutaneous manifestations of COVID-19, and hypothesize that viral exanthems (morbilliform, petechial, urticarial or varicella-like lesions) fail to provide diagnostic/prognostic value in COVID-19. Conversely, they argue that vasculopathy-related skin manifestations of COVID-19, such as chilblain lesions, vasculitis, livedo reticularis, retiform purpura, acrocyanosis, and dry gangrene, may be helpful in monitoring disease severity and could also offer prognostic value. They urge for more research on the topic as early detection of the cutaneous symptoms associated with severe disease could help improve patient outcomes.

ATYPICAL ERYTHEMA NODOSUM IN A PATIENT WITH COVID-19 PNEUMONIA

Citation: Dermatol Ther. 2020 May 23:e13658. doi: 10.1111/dth.13658. Online ahead of print.
Level of Evidence: Other

BLUF

A case report illustrated by the Hospital General Universitario Gregorio in Spain diagnosed erythema nodosum in a 57-year-old female with COVID-19 infection based on presentation, computed tomography (CT) images, and biopsy findings of a palpable subcutaneous leg nodule. The patient was unresponsive to naproxen though corticosteroid use led to successful improvement. This demonstrates the importance of physicians being conscious of various manifestations of COVID-19.

SUMMARY

A 57-year-old female, with a past medical history significant for hypertension, presented with fever and cough. Screening for COVID-19 was positive and chest X-ray revealed bilateral pneumonia. Fever remitted in 48 hours after appropriate treatment. However, 8 days post-admission, the patient presented with fever and right lower limb edema with erythematous plaque on the posterior leg and palpable nodule on the proximal right lower limb. Lab testing revealed elevated CRP, leukocytes, ferritin, and interleukin-6, and ultrasound showed inflammation of subcutaneous tissue. ANA testing was positive in a 1/320 titre. CT of the lower limbs were performed two weeks after onset, revealing inflammation at the site of the palpable subcutaneous nodule (figure 1) and a heterogenous, low-density tissue between muscles of the right thigh (figure 2). Biopsy showed adipose tissue with signs of panniculitis, suggesting erythema nodosum. Initial treatment with naproxen was not successful. Corticosteroids (prednisone 20mg daily) were started thereafter and led to successful improvement, with complete recovery after 2 weeks. This case report suggests that physicians should be conscious of atypical manifestations of COVID-19, including conditions involving the skin.

FIGURES

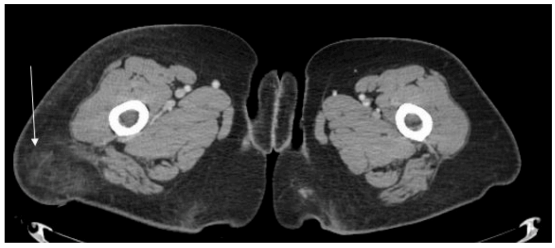
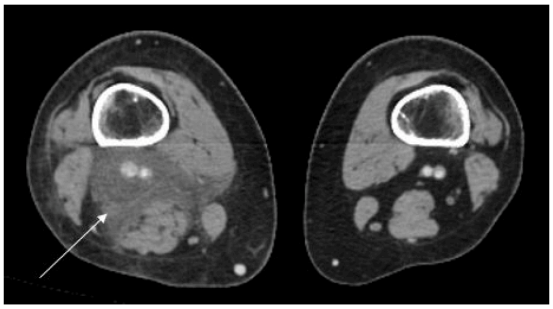


Figure 1. CT scan showing inflammation of the proximal portion of the right lower limb, where a subcutaneous node was palpable (arrow).



MANAGEMENT

A VIRTUAL CARE PROGRAM FOR OUTPATIENTS DIAGNOSED WITH COVID-19: A FEASIBILITY STUDY

Citation: CMAJ Open. 2020 May 23;8(2):E407-E413. doi: 10.9778/cmajo.20200069. Print 2020 Apr-Jun.
Level of Evidence: 4

BLUF

The authors explain their experience using a virtual care program "COVIDEO" between Mar 1 and Apr 1 2020 for the management of 50 patients who presented to a tertiary care center in Toronto, Ontario with mild COVID-19 symptoms and were sent home to self-isolate while their tests results were pending. Six patients (12%) developed a change in clinic status requiring hospitalization, and five of these transfers were coordinated by the program. The authors conclude that the COVIDEO program successfully allowed infectious disease physicians to assess the clinical status of patients virtually, and coordinate the transfer of those with deteriorating conditions. The authors suggest this is program can help provide necessary monitoring while reducing further community spread.

ABSTRACT

BACKGROUND: In patients who are discharged home to self-isolate while coronavirus disease 2019 (COVID-19) test results are pending, there is no formal method for physician assessments or counselling to occur if the result returns positive. Our aim was to develop and test the feasibility of a virtual care program for self-isolating outpatients diagnosed with COVID-19. METHODS: In preparation for this gap in health care, the COVID-19 Expansion to Outpatients (COVIDEO) program was developed at the Sunnybrook Health Sciences Centre, Toronto, Ontario, to provide ongoing care for outpatients diagnosed with COVID-19. As part of a feasibility study, we describe our experiences with the first 50 patients managed using this program from its inception (Mar. 1, 2020) until Mar. 27, 2020. RESULTS: All 50 people who tested positive for COVID-19 at the Sunnybrook Health Sciences Centre and were discharged home to self-isolation during the study period were assessed through the COVIDEO program. Thirty-two patients (64%) were assessed via the Ontario Telemedicine Network virtual care platform, and the remainder by telephone. The median time from viral swab collection to first COVIDEO program assessment was 2 (interquartile range [IQR] 1-2) days. Among the 26 patients for whom further follow-up care through the COVIDEO program was discontinued by the end of March 2020, the median duration of virtual care was 12.5 (IQR 8.75-16) days. During the study period, 6 patients required transfer to hospital for assessment, of whom 4 required admission. INTERPRETATION: We have shown that a virtual care program can be used in the management of outpatients diagnosed with COVID-19. Further studies evaluating its sustainability and impact on health outcomes are underway.

MANAGEMENT > ACUTE CARE

AN AI APPROACH TO COVID-19 INFECTION RISK ASSESSMENT IN VIRTUAL VISITS: A CASE REPORT

Citation: J Am Med Inform Assoc. 2020 May 25:ocaa105. doi: 10.1093/jamia/ocaa105. Online ahead of print.
Level of Evidence: 4

BLUF

In this quality improvement study artificial intelligence (AI) was used to strengthen the screening process for COVID-19 during virtual care visits at the Medical University of South Carolina. A pre-trained deep learning AI model stratified patients into high, medium, and low risk groups. Patients in the high risk group more frequently tested positive than those in the other two groups (p<0.0001). These results may be useful to prioritize COVID-19 testing.

SUMMARY

An analysis was performed using common word phrases from electronic health records that were mentioned more frequently in patients tested positive for COVID-19 (p<0.0001). These phrases were used to pre-train a deep learning model (AI) to select patients for screening (Figure 1). The AI model identified and analyzed patients into risk group (high, medium and low) to prioritize COVID-19 testing (Figure 2). The authors acknowledge the low sample size within the study but believe this approach will allow more efficient screening of patients for COVID-19.

ABSTRACT

OBJECTIVE: In an effort to improve the efficiency of computer algorithms applied to screening for COVID-19 testing, we used natural language processing (NLP) and artificial intelligence (AI)-based methods with unstructured patient data collected through telehealth visits. METHODS: After segmenting and parsing documents, we conducted analysis of overrepresented words in patient symptoms. We then developed a word embedding-based convolutional neural network for predicting COVID-19 test results based on patients' self-reported symptoms. RESULTS: Text analytics revealed that concepts such as "smell" and "taste" were more prevalent than expected in patients testing positive. As a result, screening algorithms were adapted to include these symptoms. The deep learning model yielded an AUC of 0.729 for predicting positive results and was subsequently applied to prioritize testing appointment scheduling. DISCUSSION: Informatics tools such as NLP and AI methods can have significant clinical impacts when applied to data streams early in the development of clinical systems for outbreak response.

FIGURES

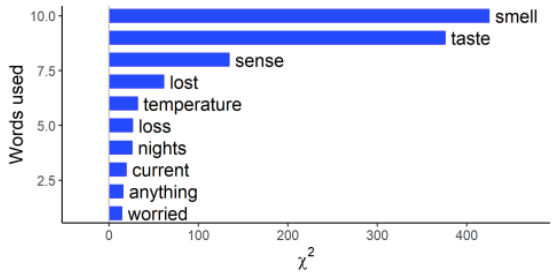


Figure 1.Top 10 words that are overrepresented in patients who tested positive for COVID-19, showing relevant words expressed by patients during the virtual care visit intake process.

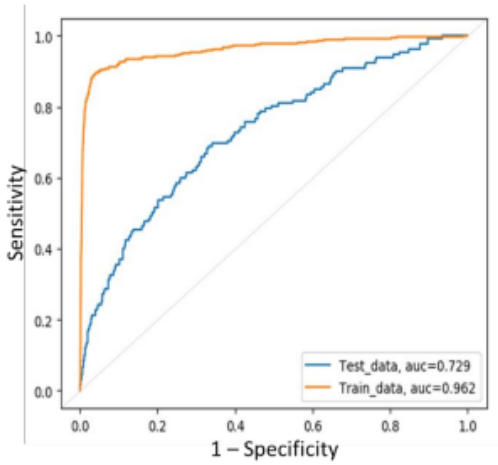


Figure 2. Analysis of discriminant power of the model.

Category	Tested (n)	Positive (n)	% Positive
High	475	289	60.84%
Medium	1,915	127	6.63%
Low	9,401	244	2.60%
Total	**11,791**	**660**	**5.60%**

Figure 2. Analysis of discriminant power of the model.

LUNG PERFUSION [(99M)TC]-MAA SPECT/CT TO RULE OUT PULMONARY EMBOLISM IN COVID-19 PATIENTS WITH CONTRAINDICATIONS FOR IODINE CONTRAST

Citation: Eur J Nucl Med Mol Imaging. 2020 May 25. doi: 10.1007/s00259-020-04862-3. Online ahead of print.
Level of Evidence: Other

BLUF

A case report of a 59 yo female with COVID-19 in Baden, Switzerland found that the use of perfusion single-photon emission tomography (SPECT) with [99mTc]-labeled-macroaggregated albumin (MAA) could be an alternative for patients with contraindications to iodinated contrast-media.

SUMMARY

A 59 yo female with positive COVID-19 swab presented with 1 week of fever and respiratory symptoms subsequently requiring invasive ventilation. Initial work-up included non-contrast CT demonstrating ground glass opacities consistent with COVID-19 and D-dimer 935 µg/l. Due to a previous history of anaphylaxis to contrast in this patient, a SPECT/CT with 180 MBq [99mTc]-MAA was ordered to rule out pulmonary embolism (PE). Despite large wedge-shaped perfusion defects on SPECT (Fig. 1) PE was ruled out and, three days later, D-dimer levels dropped to 409 µg/l without anticoagulation. After 5 days of invasive ventilation, the pulmonary capacity improved and the patient recovered. Additional details of the clinical course were not given in this report.

FIGURES

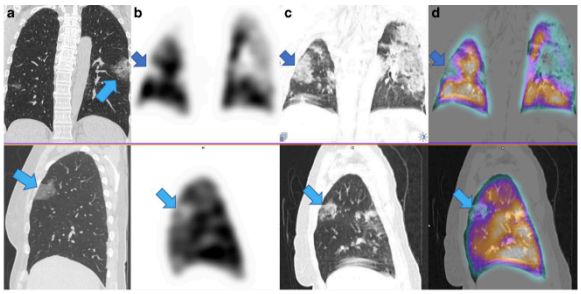


Figure 1: a. typical mild ground-glass infiltration on an unenhanced CT scan
b. large wedge-shaped perfusion defects on SPECT
c,d. pulmonary infiltrates or consolidations in the CT lung window

MORBID OBESITY AS AN INDEPENDENT RISK FACTOR FOR COVID-19 MORTALITY IN HOSPITALIZED PATIENTS YOUNGER THAN 50

Citation: Obesity (Silver Spring). 2020 May 23. doi: 10.1002/oby.22913. Online ahead of print.
Level of Evidence: 3

BLUF

This retrospective study of 3,406 COVID-19 patients who were either discharged or died in a single hospital system in New York between March 1st and March 17th, 2020 and found that, in patients younger than 50, BMI above 40 kg/m^2 was associated with an 11.4% increase in mortality compared to lower BMI (p=0.019) (Figure 1). Elevated BMI was also associated with mortality in those over 50, but to a lesser extent. The authors conclude that younger patients with morbid obesity are more likely to die from COVID-19 than those without morbid obesity. This study highlights the importance of identifying risk factors associated with morbidity and mortality from COVID-19 in younger populations, in addition to those more well known in older populations.

ABSTRACT

OBJECTIVE: COVID-19 continues to spread and younger patients are also being critically affected. This study analyzed obesity as an independent risk factor for mortality in hospitalized patients younger than fifty. METHODS: We retrospectively analyzed data of COVID-19 patients hospitalized to a large academic hospital system in New York City between March 1st and May 17th, 2020. Data included demographics, comorbidities, BMI and smoking status. Obesity groups included: BMI 30-40 kg/m2 and BMI >= 40 kg/m2 . Multivariable logistic regression models identified variables independently associated with mortality in patients younger and older than 50. RESULTS: Overall, 3,406 patients were included. 572 (17.0%) of the patients were younger than 50. In the younger age group, 60 (10.5%) patients died. In the older age group, 1,076 (38.0%) patients died. For the younger population, BMI above 40 kg/m2 was independently associated with mortality (aOR 5.1, 95% CI 2.3-11.1). For the older population, BMI above 40 kg/m2 was also independently associated with mortality to a lesser extent (aOR 1.6, 95% CI 1.2 - 2.3). CONCLUSION: Our study demonstrates that hospitalized patients younger than 50 with morbid obesity are more likely to die from COVID-19. This is particularly relevant in the western world where obesity rates are high.

FIGURES

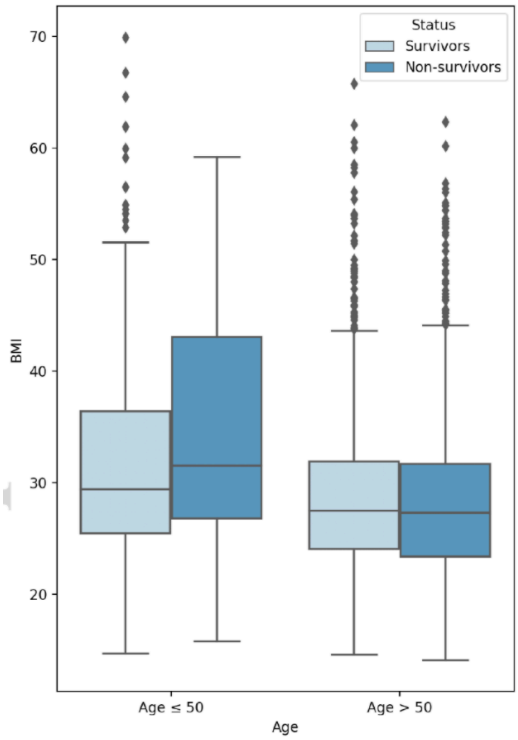


Figure 1. Boxplot comparing BMI between patients who survived or died, stratified by age 50. Abbreviation: body mass index (BMI)

PROGNOSTIC VALUE OF C-REACTIVE PROTEIN IN PATIENTS WITH COVID-19

Citation: Clin Infect Dis. 2020 May 23:ciaa641. doi: 10.1093/cid/ciaa641. Online ahead of print.
Level of Evidence: 4

BLUF

A retrospective cohort study of 298 COVID-19 patients conducted at the Eastern Campus of Renmin Hospital of Wuhan University from Jan 30 to Feb 20, 2020 found that admission serum CRP levels were predictors of disease severity (Odds Ratio 1.009, 95% CI 1.002-1.017) and outcome measured as death or recovery (Odds Ratio 0.980, 95% CI 0.971-0.990). Additional prognostic factors were age, neutrophil count, and platelet count. The authors conclude that patients with elevated CRP should receive more attention and care, however state additional research needs to be carried out to increase sample size and validate their results.

ABSTRACT

BACKGROUND: Elevated serum C-reactive protein (CRP) level was observed in most patients with COVID-19. METHODS: Data of COVID-19 patients with clinical outcome in a designated hospital in Wuhan, China, were retrospectively collected and analyzed from Jan 30 to Feb 20, 2020. The prognostic value of admission CRP was evaluated in patients with COVID-19. RESULTS: Out of 298 patients enrolled, 84 died and 214 recovered. Most non-survivors tended to be males, old aged, or with chronic diseases. Compared to survivors, non-survivors showed significantly elevated white blood cell and neutrophil count, neutrophil to lymphocyte ratio (NLR), systemic immune-inflammation index (SII, defined by platelet count multiply by NLR), CRP, procalcitonin, and D-dimer, and decreased red blood cell, lymphocyte, and platelet count. Age, neutrophil count, platelet count, and CRP were identified as independent predictors of adverse outcome. The area under the receiver operating characteristic (ROC) curve (AUC) of CRP (0.896) was significantly higher than that of age (0.833), neutrophil count (0.820), and platelet count (0.678) in outcome prediction (all $p<0.05$). With a cut-off value of 41.4, CRP exhibited sensitivity 90.5%, specificity 77.6%, positive predictive value 61.3%, and negative predictive value 95.4%. Subgroup analysis revealed that CRP remained robust accuracy in adverse outcome prediction in patients with different disease severity (AUC 0.832, $z=10.23$, $p<0.001$; AUC 0.989, $z=44.04$, $p<0.001$). CRP was also an independent discriminator of severe/critical illness on admission (AUC 0.783, $z=10.69$, $p<0.001$). CONCLUSIONS: In patients with COVID-19, admission CRP correlated with disease severity and tended to be a good predictor of adverse outcome.

CLINICAL PRACTICE GUIDANCE FOR HEPATOLOGY AND LIVER TRANSPLANT PROVIDERS DURING THE COVID-19 PANDEMIC: APASL EXPERT PANEL CONSENSUS RECOMMENDATIONS

Citation: Hepatol Int. 2020 May 23. doi: 10.1007/s12072-020-10054-w. Online ahead of print.
Level of Evidence: Other

BLUF

The Asian-Pacific Association for the Study of the Liver (APASL) COVID-19 Taskforce, comprising of 22 leaders in hepatology from 16 countries, recommend clinical practice guidelines for "management of liver injury, liver transplantation, autoimmune diseases, chronic liver diseases, delivery of elective and emergency services, and conduct of clinical trials" in the Asia-Pacific region during the COVID-19 pandemic (figure 1 & table 1).

ABSTRACT

BACKGROUND: Confronting a once-in-a-century pandemic with COVID-19, tremendous stress has been placed in all walks of life worldwide. AIMS: In order to enhance scientific information interflow in the arena of liver diseases in Asia-Pacific region during this difficult time, Asian-Pacific Association for the Study of the Liver (APASL) has taken the initiative to form the APASL COVID-19 Taskforce to formulate a clinical practice guidance in Hepatology, liver-related oncology, transplantation and conduct of clinical trials. METHODS: A taskforce with 22 key opinion leaders in Hepatology from 16 countries or administration regions in Asia-Pacific regions was formed and through intense interaction via webinar, this guidance was formulated. Based on scientific data and experiences, recommendations were made in the management of liver injury, liver transplantation, autoimmune diseases, chronic liver diseases, delivery of elective and emergency services and conduct of clinical trials. CONCLUSIONS: This is the first consensus clinical guidance synthesized by APASL for our hepatologist and their allied medical personal.

FIGURES

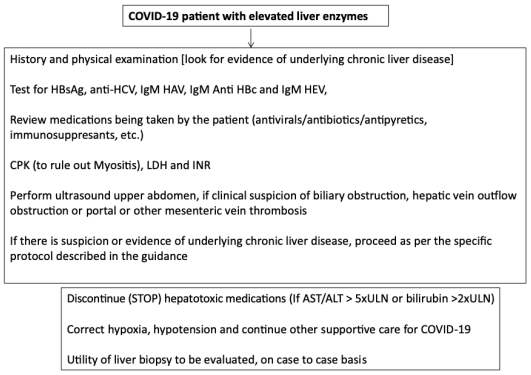


Fig. 1 Evaluation of COVID-19 patient with elevated liver enzymes.

Table 1 Investigational Treatment for COVID-19

Agent (Route/Mechanism)	Abnormal liver functions in COVID-19 Trials	Comments	Suggestions	References
Remdesivir (IV/nucleotide analogue)	21–24% 4% drug discontinuation Single arm study	Over incidence Not significantly higher than COVID-19 subjects not on remdesivir	Careful monitoring, stopped when ALT/AST > 5 × ULN, bilirubin > 2 × ULN	Grein J, et al. [29]
Lopinavir-ritonavir (Oral/HIV protease inhibitor)	3–10% overall Grade 3–4 2% vs 4% compared to placebo	Over incidence Not significantly higher than Covid-19 on placebo placebo	Careful monitoring, stopped when ALT/AST > 5 × ULN, bilirubin > 2 × ULN	Cao B, et al. [30]
Hydroxycholoroquine / Chloroquine (Oral)	26% vs 20% (placebo) in combination with Azithromycin	Over incidence Not significantly higher than Covid-19 on placebo	Careful monitoring, stopped when ALT/AST > 5 × ULN, bilirubin > 2 × ULN	Gautret P, et al. [31]
Azithromycin (Oral)	26% vs 20% (placebo) In combination with Hydroxycholoroquine /Chloroquine	Over incidence Not significantly higher than Covid-19 on placebo	Careful monitoring, stopped when ALT/AST > 5 × ULNl, bilirubin > 2 × ULN	Gautret P, et al. [31]
Favipiravir (Oral/RNA polymerase inhibitor)	2.9% vs 6.6% (lopinavir/ritonavir)	Over incidence Not significantly higher than COVID -19 subjects not on flavpiravir	Careful monitoring, stopped when ALT/AST > 5 × ULN, bilirubin > 2 × ULN	Cai Q, et al. [32]

COVID-19 DISEASE AND OPHTHALMOLOGY: AN UPDATE

Citation: Ophthalmol Ther. 2020 May 22. doi: 10.1007/s40123-020-00260-y. Online ahead of print.
Level of Evidence: Other

BLUF

A literature review performed by Ophthalmologists in Alicante, Spain found that conjunctivitis and uveitis have been correlated with coronavirus infections, including SARS-CoV-2 infection. It is still unclear whether the eyes and tears are portals for SARS-CoV-2 transmission, although it is possible to isolate the virus from the conjunctival sac of patients with COVID-19. As a precaution, ophthalmologists should limit patients in their clinics, screen for symptoms of COVID-19, ensure proper personal protective equipment for staff and patients, install protective shields, and frequently disinfect equipment such as slit lamps.

ABSTRACT

The worldwide outbreak of the severe and acute respiratory coronavirus disease (COVID-19) caused by the coronavirus strain SARS-CoV-2 is currently the focal point of discussion due to the suffering this syndrome is causing to humanity. However, the ophthalmological implications of this syndrome has not yet been well described. Both eyes and tears as portals of entry and sources of contagion have been the subject of debate by many authors. The purpose of this review is to summarize the evidence currently available on COVID-19 and its ocular implications and manifestations, in both animals and humans, with the aim to facilitate prevention and educate the ophthalmological community on this subject. A review of the literature revealed that the results of some studies suggest that ocular symptoms commonly appear in patients with severe COVID-19 pneumonia and that it is possible to isolate the virus from the conjunctival sac of these patients. Conjunctivitis is not a common manifestation of the disease, but contact with infected eyes could be one route of transmission. Consequently, ophthalmologists need to have correct prevention strategies in place. Some guidelines regarding the prevention and management of ophthalmology clinics are reviewed. However, well-designed trials should be conducted to rule out other ocular manifestations that may result from COVID-19 infection and to understand the transmission of the virus through the eyes.

THE IMPACT OF HAVING INADEQUATE SAFETY EQUIPMENT ON MENTAL HEALTH

Citation: Occup Med (Lond). 2020 May 25:kqaa101. doi: 10.1093/occmed/kqaa101. Online ahead of print.
Level of Evidence: 3

BLUF

A survey of 3,401 military personnel (2009-2015) about their perception of occupational equipment inadequacy and mental health had 15% report that they were troubled by equipment inadequacy. Multivariable analysis showed that perception of equipment inadequacy was correlated with significantly higher rates of poorer general health, common mental health disorders, self-reported emotional problems, and post-traumatic stress disorder (PTSD). Authors extrapolate this correlation to healthcare workers on the front lines of the pandemic and suggest that healthcare managers should have a heightened alert for signs of poor mental health among their employees, especially those affected by poor equipment availability.

ABSTRACT

BACKGROUND: Concerns are being raised about the impact of inadequate safety equipment on the mental health of healthcare workers during the COVID-19 medical response. AIMS: To assess the impact of inadequate safety equipment on the mental health of service personnel deployed on operations in order to better understand the impact on those working under the similarly demanding conditions of the COVID-19 medical response. METHODS: Self-report surveys were conducted in four operational environments with 3435 personnel providing data. Surveys recorded data on socio-demographic, military and operational characteristics, mental health measures and specific occupational stressors. Analysis through logistic regression explored the association between inadequate equipment and all other factors. RESULTS: A total of 3401 personnel provided data on their perceptions of the adequacy of their equipment, of which 532 (15%) stated that they had a lot of concerns that they did not have the right equipment in working order. Analysis found significantly greater odds of reporting symptoms of common mental health disorders (CMD), 2.49 (2.03-3.06), post-traumatic stress disorder (PTSD), 2.99 (2.11-4.24), poorer global health 2.09 (1.62-2.70) and emotional problems 1.69 (1.38-2.06) when individuals reported working with inadequate equipment. Analyses remained significant when adjusted for confounding factors such as rank, sex and operational environment. CONCLUSIONS: An individual's perception of having inadequate equipment is significantly associated with symptoms of CMD, probable PTSD, poorer global health and increased reporting of emotional problems. This in turn may impact on their ability to safely carry out their duties and may have longer-term mental health consequences.

FRONTLINE FIGHTERS: THE CONTINUED FIGHT AGAINST COVID-19

Citation: Int J Gynecol Cancer. 2020 May 23:ijgc-2020-001534. doi: 10.1136/ijgc-2020-001534. Online ahead of print.
Level of Evidence: Other

BLUF

This article recognizes the inspirational efforts of Dr. Ali Ayhan, a renowned leader of the gynecological oncology field in Turkey, in maintaining his practice in the face of the COVID-19 pandemic through the adoption of preventive measures and virtual educational initiatives. He is just "one example from the world of gynecological oncology who exemplifies defiance against adversity."

BODY MASS INDEX, WEIGHT DISCRIMINATION, AND PSYCHOLOGICAL, BEHAVIORAL, AND INTERPERSONAL RESPONSES TO THE CORONAVIRUS PANDEMIC

Citation: Obesity (Silver Spring). 2020 May 23. doi: 10.1002/oby.22914. Online ahead of print.
Level of Evidence: 2

BLUF

A cross-sectional study of 2,094 participants was conducted by researchers from the United States, United Kingdom, and France from February - March 2020. They found that weight discrimination (ie, perception of unfair treatment because of body weight) rather than body mass index (BMI) is a strong predictor of a person's concern about the virus, engagement in preventative behaviors, mistrust in public health agencies in tackling the pandemic, and sense of social isolation. This study suggests that obesity as a risk factor for COVID-19 complications needs to be communicated to the public while framing it in a way so as to not stigmatize individuals.

ABSTRACT

OBJECTIVE: To examine whether body mass index (BMI) and weight discrimination are associated with psychological, behavioral, and interpersonal responses to the coronavirus pandemic. METHODS: Using a prospective design, participants (N=2,094) were first assessed in early February 2020 before the coronavirus crisis in the United States and again in mid-March 2020 during the President's 15 Days to Slow the Spread guidelines. Weight, height, and weight discrimination were assessed in the February survey. Psychological, behavioral, and interpersonal responses to the coronavirus were assessed in the March survey. RESULTS: Pre-pandemic experiences with weight discrimination were associated with greater concerns about the virus, engaging in more preventative behaviors, less trust in people and institutions to manage the outbreak, and greater perceived declines in connection to one's community. BMI tended to be unrelated to these responses. CONCLUSIONS: Despite the risks of complications of COVID-19 associated with obesity, individuals with higher BMI were neither more concerned about the virus nor taking more behavioral precautions than individuals in other weight categories. Weight discrimination, in contrast, may heighten vigilance to threat, which may have contributed to both positive (greater concern, more precautionary behavior) and negative (less trust, declines community connection) responses to the pandemic.

FIGURES

Predictor	Coronavirus Concerns		Precautionary Behavior		Trust to Manage Outbreak		Relationship Quality Decline[a]	
	β (95% CI)	*p*	β (95% CI)	*p*	β (95% CI)	*p*	β (95% CI)	*p*
Age	-.18 (-.23, -.14)	.000	.04 (.00, .09)	.065	.07 (.03, .12)	.002	-.06 (-.12, .00)	.052
Gender (male)	-.03 (-.07, .02)	.209	-.15 (-.20, -.11)	.000	-.01 (-.05, .04)	.687	.02 (-.04, .08)	.530
Race (African American)	.03 (-.01, .08)	.167	.00 (-.04, .05)	.829	-.05 (-.09, .00)	.044	-.04 (-.11, .01)	.129
Ethnicity (Latinx)	.03 (-.01, .08)	.136	.05 (.01, .10)	.021	-.04 (-.08, .01)	.082	-.05 (-.11, .00)	.076
Education	.10 (.06, .15)	.000	.04 (.00, .09)	.042	-.02 (-.06, .03)	.473	.03 (-.03, .08)	.348
Body mass index								
Underweight	.04 (.00, .09)	.062	-.05 (-.10, -.01)	.025	.04 (.00, .089)	.052	-.02 (-.08, .04)	.597
Overweight	.01 (-.04, .06)	.652	.02 (-.03, .07)	.475	.00 (-.05, .05)	.904	-.06 (-.12, .00)	.045
Obesity	.03 (-.02, .08)	.303	-.04 (-.09, .02)	.177	-.04 (-.09, .02)	.174	.01 (-.05, .08)	.672
Weight discrimination	.07 (.03, .12)	.001	.06 (.02, .10)	.008	-.10 (-.14, -.05)	.000	.06 (.01, .12)	.037

Note. *N*=2,094. [a]*n*=1,389 for relationship quality decline. Coefficients are standardized beta coefficients (95% Confidence Intervals) from linear regression.

Table 2. Linear Regression Predicting Psychological, Behavioral and Interpersonal Responses to the Coronavirus Pandemic from Body Mass Index and Weight Discrimination

Predictor	Partner[a]		Family and Relatives		Friends		Community	
	β (95% CI)	*p*	β (95% CI)	*p*	β (95% CI)	*p*	β (95% CI)	*p*
Age	.09 (.03, .16)	.003	.11 (.06, .16)	.000	.09 (.04, .14)	.000	.04 (-.01, .09)	.087
Gender (male)	-.06 (-.12, .00)	.042	-.06 (-.11, -.02)	.008	-.02 (-.06, .03)	.484	.00 (-.04, .05)	.849
Race (African American)	.06 (.01, .13)	.026	.00 (-.04, .05)	.873	.02 (-.03, .06)	.744	-.05 (-.10, -.01)	.022
Ethnicity (Latinx)	-.04 (-.11, .01)	.099	.00 (-.04, .05)	.817	.00 (-.05, .04)	.809	-.04 (-.09, .00)	.050
Education	.01 (-.05, .07)	.732	.02 (-.03, .06)	.478	.03 (-.02, .07)	.206	.03 (-.01, .08)	.142
Body mass index								
Underweight	.03 (-.02, .09)	.259	-.03 (-.07, .02)	.240	.00 (-.04, .05)	.865	.02 (-.03, .06)	.463
Overweight	.03 (-.03, .10)	.316	-.01 (-.06, .04)	.630	-.04 (-.09, .01)	.143	-.03 (-.08, .02)	.272
Obesity	.00 (-.06, .07)	.946	.00 (-.06, .05)	.912	.00 (-.06, .05)	.919	-.03 (-.08, .02)	.292
Weight discrimination	-.01 (-.07, .05)	.828	.01 (-.04, .05)	.759	.01 (-.04, .05)	.324	-.07 (-.12, -.03)	.002

Note. *N*=2,086. [a]*n*=1,386 in a committed romantic relationship. Coefficients are standardized beta coefficients (95% Confidence Intervals) from linear regression.

NEUROPSYCHIATRIC SYMPTOMS AND QUALITY OF LIFE IN SPANISH ALZHEIMER'S DISEASE PATIENTS DURING COVID-19 LOCKDOWN

Citation: Eur J Neurol. 2020 May 25. doi: 10.1111/ene.14339. Online ahead of print.
Level of Evidence: 3

BLUF

This prospective cohort study assessed the effect a 5-week national lock down on the neuropsychiatric symptom profile and quality of life in 40 patients previously diagnosed with Alzheimers Disease or Amnesic Mild Cognitive Impairment in Santa Maria, Spain (see table 1 for patient characteristics). Findings included worsening neuropsychiatric symptoms in both groups including agitation (p=0.020), apathy (p=0.000), and aberrant motor behavior (p=0.019) (see table 2). The researchers encourage further study on the longitudinal effects of confinement in these vulnerable populations.

SUMMARY

Using the Neuropsychiatric Inventory and the EuroQol-5D quality of life assessment tools, the investigators found that neuropsychiatric symptoms worsened significantly in both patient groups studied (see table 1 for patient characteristics). The most commonly reported behavior changes were increased agitation (p=0.020), apathy (p=0.000), and changes in motor activity (p=0.019) (see table 2). However, there was no statistically significant change in quality of life of the participants or caregivers. Researchers encouraged further study into the longitudinal effects of confinement on these and similar populations of vulnerable patients. Of note, these findings were limited by the small population size, different methods required for collecting data (first contact was a personal interview, second contact a phone interview) and the requirement to travel to the hospital three times each week (which may in itself have affected the results).

ABSTRACT

BACKGROUND AND PURPOSE: The COVID epidemic is affecting individuals worldwide, and Alzheimer's disease (AD) and amnesic mild cognitive impairment (MCI) patients are at risk due to their characteristics and age. We analysed the impact of the pandemic on these patients' neuropsychiatric symptoms and their quality of life after five weeks of lockdown in Spain. METHODS: We tested 40 subjects with a diagnosis of MCI (20) or mild AD (20) from the Cognitive Stimulation Program of Cognitive Disorders Unit. All patients had undergone a previous evaluation during the month before the lockdown, and they were re-evaluated after 5 weeks of lockdown. The Neuropsychiatric Inventory (NPI) and EuroQol-5D were used to evaluate the neuropsychiatric symptoms and quality of life of patients and caregivers. RESULTS: The total baseline NPI score was 33.75 (22.28) vs 39.05 (27.96) after confinement (p=0.028). The most frequent neuropsychiatric symptoms affected were apathy (4.15 (3.78) vs 5.75 (4.02); p=0.002) and anxiety (3.95 (3.73) vs 5.30 (4.01); p=0.006) in MCI patients and apathy (2.35 (2.70) vs 3.75 (3.78); p=0.036), agitation (0.45 (1.14) vs 1.50 (2.66); p=0.029) and aberrant motor behaviour (1.25 (2.86) vs 2.00 (2.93); p=0.044) in AD patients. We did not observe differences in EuroQol-5D scores during the reevaluation. Approximately 30% of patients and 40% of caregivers reported a worsening of their health status during confinement. CONCLUSIONS: We have demonstrated the worsening of neuropsychiatric symptoms in patients with AD and MCI during 5 weeks of lockdown, with agitation, apathy and aberrant motor activity being the most affected symptoms.

FIGURES

	Global	MCI	AD	p
Age (SD)	77.4 (5.25)	77.3 (4.05)	77.5 (6.33)	0.049
Women (%)	24 (60.0%)	10 (50.5%)	14 (70.0%)	0.167
MMSE (SD)	23.1 (3.76)	25.3 (2.77)	20.9 (3.37)	0.433
Married (%)	25 (62.5%)	13 (65.0%)	8 (40.0%)	0.596
Non-professional caregiver	39 (97,5%)	19 (95.0%)	20 (100%)	0.503
Hypertension (%)	24 (60.0%)	9 (45.0%)	15 (75.0%)	0.053
Diabetes (%)	12 (30.0%)	7 (35.0%)	5 (25.0%)	0.366
Dislipidemia(%)	21 (52,5%)	10 (50.5%)	11 (55.0%)	0.514
Psychiatric treatment (%)	22 (55,0%)	12 (60.0%)	10 (50.0%)	0.376
Acetilcholinesterasa inhibitors (%)	21 (52,5%)	5 (25.0%)	16 (80.0%)	0.001

Table 1. Descriptive characteristics of mild cognitive impairment and moderate Alzheimer's disease patients.

	Prelockdown	5 weeks lockdown	p
Stress	9.85 (7.75)	10.33 (8.29)	0.554
Delusions	0.63 (1.90)	0.75 (2.20)	0.565
Hallucinations	0.20 (0.72)	0.15 (0.70)	0.700
Agitation/aggression	0.68 (1.50)	1.50 (2.58)	0.020
Depression/dysphoria	2.25 (3.06)	2.50 (3.49)	0.602
Anxiety	4.73 (3.92)	5.18 (4.34)	0.458
Euphoria	0.53 (1.24)	0.43 (1.48)	0.514
Apathy	3.25 (3.37)	4.75 (3.98)	0.000
Desinhibition	0.85 (1.62)	0.82 (1.55)	0.852
Irritability/lability	3.33 (3.14)	3.83 (3.80)	0.278
Aberrant motor behaviour	1.15 (2.58)	1.83 (2.84)	0.019
Night-time behavioral disturbances	2.45 (3.57)	2.80 (3.40)	0.548
Appetite/eating disorders	3.88 (4.88)	4.20 (4.93)	0.537

LONELINESS AND SOCIAL ISOLATION DURING THE COVID-19 PANDEMIC

Citation: Int Psychogeriatr. 2020 May 26:1-15. doi: 10.1017/S1041610220000988. Online ahead of print.
Level of Evidence: Other

BLUF

Psychiatrists from Taiwan, Canada, Australia, and Japan discusses the negative health risks that social isolation and lockdown measures pose for the physical and mental health of older adults and provide guidelines on how to minimize psychological stress among this population:

- Utilize technology to stay in regular contact with family members.
- Caregivers should ensure that there are adequate stocks of items such as food and medications.
- Perform regular physical exercise and utilize time outside when possible.
- Manage moods and emotions while staying aware of any new psychiatric symptoms.
- Take extra care with dementia patients because of their difficulty in understanding adequate social distancing guidelines.

ABSTRACT

Loneliness and social isolation are associated with adverse physical and psychological consequences which are particularly prevalent in older persons. During this unprecedented time of the COVID-19 pandemic, we must follow social distancing guidelines to protect ourselves and to reduce the spread of coronavirus. At the same time, it is crucial to maintain social connections with each other, especially with older persons, to help cope and reduce the negative consequences of loneliness and social isolation. It is important to develop new strategies (e.g. virtual health care and new government policy) to address loneliness and social isolation among older adults for the post-pandemic era.

INAPPROPRIATE NASOPHARYNGEAL SAMPLING FOR SARS-COV-2 DETECTION IS A RELEVANT CAUSE OF FALSE-NEGATIVE REPORTS

Citation: Otolaryngol Head Neck Surg. 2020 May 26:194599820931793. doi: 10.1177/0194599820931793. Online ahead of print.
Level of Evidence: 4

BLUF

Otolaryngologists, maxillofacial surgeons, and researchers in Sassari, Italy, describe a case series of four symptomatic patients with nasal obstruction who first tested negative for SARS-CoV-2 infection by nasopharyngeal RT-PCR, then later tested positive when swabbed by an otolaryngologist. The authors suggest that inadequate nasopharyngeal swabs may contribute to false-negative SARS-CoV-2 testing, with possible increased incidence of false-negatives when untrained operators swab patients with nasal obstruction.

The authors provide a video tutorial detailing appropriate nasopharyngeal swab technique (Note: video narrated in Italian) <https://www.youtube.com/watch?v=mwAeVVES_Yk>

ABSTRACT

Reverse transcriptase polymerase chain reaction (RT-PCR) detection of SARS-CoV-2 mRNA on nasopharyngeal swab is the standard for diagnosing active COVID-19 disease in asymptomatic cases and in symptomatic patients without the typical radiologic findings. For the present COVID-19 outbreak in Italy, we describe 4 symptomatic patients with negative RT-PCR results at the first nasopharyngeal swab, which became positive when collected a few hours later by an otolaryngologist. All the patients showed nasal obstruction. The present report suggests that inadequate nasopharyngeal sampling performed by untrained operators in the presence of nasal obstruction can be a relevant case of false-negative findings at RT-PCR, with a clear negative impact on the efforts to contain the current outbreak.

REMDESIVIR FOR THE TREATMENT OF COVID-19 - PRELIMINARY REPORT

Citation: N Engl J Med. 2020 May 22. doi: 10.1056/NEJMoa2007764. Online ahead of print.
Level of Evidence: 2

BLUF

This double-blind, randomized, placebo-controlled trial evaluated the efficacy of intravenous remdesivir in adults hospitalized with COVID-19 and found shortened time to recovery in the remdesivir group (median, 11 days, as compared with 15 days, P<0.001) suggesting this viral RNA-dependent, RNA polymerase inhibitor may have therapeutic potential in treating patients with COVID-19.

ABSTRACT

BACKGROUND: Although several therapeutic agents have been evaluated for the treatment of coronavirus disease 2019 (Covid-19), none have yet been shown to be efficacious. METHODS: We conducted a double-blind, randomized, placebo-controlled trial of intravenous remdesivir in adults hospitalized with Covid-19 with evidence of lower respiratory tract involvement. Patients were randomly assigned to receive either remdesivir (200 mg loading dose on day 1, followed by 100 mg daily for up to 9 additional days) or placebo for up to 10 days. The primary outcome was the time to recovery, defined by either discharge from the hospital or hospitalization for infection-control purposes only. RESULTS: A total of 1063 patients underwent randomization. The data and safety monitoring board recommended early unblinding of the results on the basis of findings from an analysis that showed shortened time to recovery in the remdesivir group. Preliminary results from the 1059 patients (538 assigned to remdesivir and 521 to placebo) with data available after randomization indicated that those who received remdesivir had a median recovery time of 11 days (95% confidence interval [CI], 9 to 12), as compared with 15 days (95% CI, 13 to 19) in those who received placebo (rate ratio for recovery, 1.32; 95% CI, 1.12 to 1.55; P<0.001). The Kaplan-Meier estimates of mortality by 14 days were 7.1% with remdesivir and 11.9% with placebo (hazard ratio for death, 0.70; 95% CI, 0.47 to 1.04). Serious adverse events were reported for 114 of the 541 patients in the remdesivir group who underwent randomization (21.1%) and 141 of the 522 patients in the placebo group who underwent randomization (27.0%). CONCLUSIONS: Remdesivir was superior to placebo in shortening the time to recovery in adults hospitalized with Covid-19 and evidence of lower respiratory tract infection. (Funded by the National Institute of Allergy and Infectious Diseases and others; ACCT-1 ClinicalTrials.gov number, NCT04280705.).

FIGURES

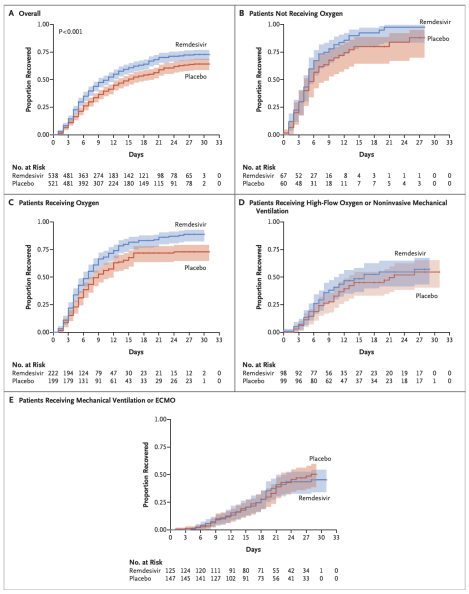


Figure 1: Kaplan–Meier Estimates of Cumulative Recoveries.
Cumulative recovery estimates are shown in the overall population (Panel A), in patients with a baseline score of 4 on the ordinal scale (not receiving oxygen; Panel B), in those with a baseline score of 5 (receiving oxygen; Panel C), in those with a

baseline score of 6 (receiving high-flow oxygen or noninvasive mechanical ventilation; Panel D), and in those with a baseline score of 7 (receiving mechanical ventilation or ECMO; Panel E).

IN-SILICO STRATEGIES FOR PROBING CHLOROQUINE BASED INHIBITORS AGAINST SARS-COV-2

Citation: J Biomol Struct Dyn. 2020 May 25:1-25. doi: 10.1080/07391102.2020.1772111. Online ahead of print.
Level of Evidence: 5

BLUF

An in silico modeling study conducted in Kurukshetra, India in April 2020 by the National Institute of Technology Kurukshetra investigated chloroquine and chloroquine analogs' binding affinity to the SARS spike glycoprotein-human ACE 2 complex as potential treatment options. The authors believe their results suggest potential for development of novel drugs for treating COVID-19.

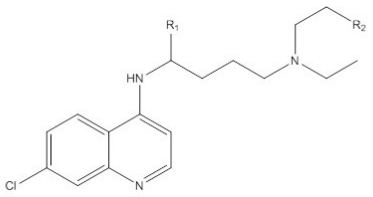
SUMMARY

In order to investigate potential new compounds that may have a higher affinity to the SARS-CoV-2 spike glycoprotein-human ACE 2 complex, the investigators used Maestro 12.3 software to model it's binding to chloroquine, hydroxychloroquine, and 18 other chloroquine analogs (see scheme 1 for analogs used). The authors hope this may identify future treatments which prevent the fusion and endocytosis of the virus. Their model found three main chloroquine derivative (CQD15, CQD14, and CQD16) that showed improved affinity to the SARS-COV-2 spike glycoprotein-human ACE 2 complex (see table 3 and 5 below). They suggest derivatives of chloroquine, especially CDQ15, may play a prominent role in COVID-19 treatment. However, further in-vitro analyses are required in order to make this definitive decision.

ABSTRACT

The global health emergency of novel COVID-19 is due to severe acute respiratory syndrome coronavirus-2 (SARS-CoV-2). Currently there are no approved drugs for the treatment of coronaviral disease (COVID-19), although some of the drugs have been tried. Chloroquine is being widely used in treatment of SARS-CoV-2 infection. Hydroxychloroquine, the derivative of Chloroquine shows better inhibition than Chloroquine and has in vitro activity against SARS-CoV-2 also used to treat COVID-19. To study the interactions of Chloroquine and derivatives of Chloroquine with SARS-CoV-2, series of computational approaches like pharmacophore model, molecular docking, MM_GBSA study and ADME property analysis are explored. The pharmacophore model and molecular docking study are used to explore the structural properties of the compounds and the ligand-receptor (PDB_ID: 6LU7) interactions respectively. MM_GBSA study gives the binding free energy of the protein-ligand complex and ADME property analysis explains the pharmacological property of the compounds. The resultant best molecule (CQD15) further subjected to molecular dynamics (MD) simulation study which explains the protein stability (RMSD), ligand properties as well as protein-ligand contacts. Outcomes of the present study conclude with the molecule CQD15 which shows better interactions for the inhibition of SARS-CoV-2 in comparison to Chloroquine and Hydroxychloroquine.

FIGURES



Sl. No.	Structure	R1	R2	Sl. No.	Structure	R1	R2
1	Chloroquine	CH_3	H	10	CQD8	Cl	CH_3
2	Hydroxychloroquine	CH_3	OH	11	CQD9	F	CH_3
3	CQD1	CH_3	Br	12	CQD10	NH_2	CH_3
4	CQD2	CH_3	Cl	13	CQD11	CH_3	
5	CQD3	CH_3	F	14	CQD12	OH	
6	CQD4	CH_3	NH_2	15	CQD13	NH_2	
7	CQD5	CH_3	NO_2	16	CQD14	CH_3	
8	CQD6	OH	CH_3	17	CQD15	OH	
9	CQD7	Br	CH_3	18	CQD16	NH_2	

Scheme 1: Chemical structure of Chloroquine scaffolds.

Ligand	DockScore	LipophilicEvdW	PhobEnHB	HBond	Electro	LowMW
CQD-15	-6.47	-3.77	-1.37	-1.25	-0.55	-0.12
CQD-14	-5.48	-3.74	-1.5	-1.28	-0.38	-0.13
CQD-16	-5.35	-3.32	-1.5	-2.2	-0.81	-0.12
CQD-11	-5.33	-4.56	-0.75	-0.7	-0.38	-0.18
CQD-12	-4.91	-3.21	-1.5	-0.94	-0.44	-0.17
CQD-13	-4.88	-3.93	0	-1.2	-0.39	-0.18
CQD-6	-4.78	-2.79	-1.5	-0.63	-0.34	-0.38
CQD-7	-4.68	-2.69	-1.5	-0.7	-0.22	-0.17
CQD-5	-4.44	-3.51	-0.75	-0.7	-0.49	-0.28
CQD-4	-4.06	-3.38	0	-0.7	-0.41	-0.38
CQD-9	-3.9	-3.38	0	-0.65	-0.32	-0.37
CQD-10	-3.7	-3.44	0	-0.11	-0.25	-0.38
CQD-2	-3.6	-3.53	0	0	-0.14	-0.32
HCQ	-3.6	-3.28	0	0	-0.19	-0.38
CQ	-3.56	-3.48	0	0	-0.16	-0.43
CQD-1	-3.54	-3.62	0	0	-0.07	-0.17
CQD-3	-3.52	-3.62	0	0	-0.14	-0.37
CQD-8	-3.51	-3.81	0	0	-0.05	-0.32

Table 5: ADME properties of all 18 ligands to determine their 'drug-likeness'.

Ligand	mol_MW	donorHB	acceptHB	QPlogPo/w	RuleOfFive	QPlogS	%Human Oral Absorption
CQD15	413.946	3	6.45	4.094	0	-4.705	91.032
CQD14	411.973	2	4.75	4.998	0	-4.7	100
CQD13	396.962	3	5	4.313	0	-3.387	92.144
CQD12	397.947	2	5.7	4.235	0	-3.367	100
CQD11	395.974	1	4	5.569	1	-4.44	100
CQD10	334.891	3	5	2.496	0	-0.975	78.096
CQD9	337.867	1	4	4.661	0	-4.601	100
CQD8	354.322	1	4	4.991	0	-4.997	100
CQD7	398.773	1	4	5.066	1	-5.083	100
CQD6	335.876	2	5.7	3.352	0	-3.13	95.059
CQD5	364.874	1	6	3.505	0	-3.524	92.172
CQD4	334.891	3	5	2.968	0	-2.604	79.338
CQD3	337.867	1	4	4.777	0	-4.824	100
CQD2	354.322	1	4	4.983	0	-4.944	100
CQD1	398.773	1	4	5.047	1	-4.798	100
Hydroxy- chloroquine	335.876	2	5.7	3.329	0	-3.335	93.491
Chloroquine	319.876	1	4	4.559	0	-4.582	100
CQD16	412.961	4	5.75	3.619	0	-3.619	76.602

Table 5: ADME properties of all 18 ligands to determine their 'drug-likeness'.

THE PROTEINS OF SEVERE ACUTE RESPIRATORY SYNDROME CORONAVIRUS-2 (SARS COV-2 OR N-COV19), THE CAUSE OF COVID-19

Citation: Protein J. 2020 May 23. doi: 10.1007/s10930-020-09901-4. Online ahead of print.
Level of Evidence: 5

BLUF

The author reviewed the genome of SARS-CoV-2 and characterized the virus' proteins encoded by ORF1ab (polyprotein), ORF2 (Spike protein), ORF3a, ORF4 (Envelope protein), ORF5 (Membrane protein), ORF6, ORF7a, ORF7b, ORF8, ORF9 (Nucleocapsid protein), and ORF10. A list of potential drugs that target proteins found in SARS-CoV-2 is included in Table 1. The author suggests that further understanding of the virus' structural proteins will allow researchers to design effective antiviral treatments.

ABSTRACT

The devastating effects of the recent global pandemic (termed COVID-19 for "coronavirus disease 2019") caused by the severe acute respiratory syndrome coronavirus-2 (SARS CoV-2) are paramount with new cases and deaths growing at an exponential rate. In order to provide a better understanding of SARS CoV-2, this article will review the proteins found in the SARS CoV-2 that caused this global pandemic.

FIGURES

Table 6 Drugs that potentially target (modulate) proteins that interact with SARS CoV-2 proteins as described in reference [66]

Entry	Viral Protein-(Human Gene)	Compound Name(s)
1	E protein-(BRD2/4)	JQ1,[a] RVX-208[b]
2	N protein-(CSNK2A2)	Silmitasertib (cancer),[c] TMCB[a]
3	NSP5-(HDAC2)	Apicidin,[a] Valproic acid (CNS disease, cancer)[c]
4	NSP6-(ATP6AP1)	Bafilomycin A1[a]
5	NSP6-(SIGMAR1)	E-52862,[b] PD-144418,[a] RS-PPCC,[a] PB28,[a] Haloperidol (CNS disease)[c]
6	NSP6-(SLC6A15)	Loratadine (antihistamine)[3]
7	ORF9C-(TMEM97)	PB28,[a] haloperidol (CNS disease)[c]
8	M protein-(ATP6V1A)	Bafilomycin A1[a]
9	NSP7-(COMT)	Entacapone (Parkinson's disease)[c]
10	NSP7-(PTGES2)	Indomethacin (inflammation/pain)[c]
11	NSP7-(NDUFs)	Metformin (diabetes)[c]
12	ORF9C-(NDUFs)	Metformin[c]
13	NSP12-(RIPK1)	Ponatinib (cancer)[c]
14	NSP13-(PRKACA)	H-89[a]
15	NSP14-(IMPDH2)	Merimepodib[b]
16	NSP14-(GLA)	Migalastat (Fabry disease)[c]
17	NSP14-(IMPDH2)	Mycophenolic acid (organ rejection),[3] ribavirin (virus)[c]
18	ORF8-(DNMT1)	Azacitidine[c]
19	ORF8-(LOX)	CCT 365623[a]
20	ORF9b-(MARK2/3)	Midostaurin,[3] Ruxolitinib[c]
21	ORF9b-(DCTPP1)	ZINC1775962367,[a] ZINC4326719,[a] ZINC4511851[a]
22	ORF9b/NSP13-(MARK3/TBK1)	ZINC95559591[a]
23	ORF9C-(F2RL1)	AC-55541,[a] AZ8838[a]
24	ORF9C-(ABCC1)	Daunorubicin[c]
25	ORF9C-(F2RL1)	GB110[a]
26	ORF9C-(ABCC1)	S-Verapamil (hypertension)[c]
27	ORF9C-(F2RL1)	AZ3451[a]
28	M-Protein-(SLC1A3)	UCPH-101[a]
29	E protein-(BRD2/4)	ABBV-744,[b] dBET6,[a] MZ1,[a] CPI-0610[b]
30	N protein-(LARP1)	Sapanisertib,[b] Rapamycin (organ rejection)[c]
31	NSP2-(FKBP15)	Rapamycin[c]
32	ORF8-(FKBP7/10)	Rapamycin[c]
33	NSP2-(EIF4E2/H)	Zotatifin[b]
34	ORF10-(VCP)	CB5083[b]
35	NSP6-(SIGMAR1)	Chloroquine (malaria)[c]
36	NSP9-NEK9	Dabrafenaib (cancer)[c]
37	NSP13-CEP250	WDB002[b]
38	NSP14-IMPDH2	Sanglifehrin A[a]
39	ORF8-(FKBP7)	FK-506 (organ rejection)[c]
40	ORF8-(FKBP10)	FK-506[c]
41	ORF10-(CUL2)	Pevonedistat[b]
42	ORF10-(VCP)	DBeQ, ML240[a]
43	ORF8-(PLOD1/2)	Minoxidil (hair loss)[c]
44	NSP4/9/ORF6-(NUPs RAE1)	Selinexor (cancer)[c]

Entries 1–28 were determined from chemoinformatics. Entries 29–44 were determined from specialist knowledge

[a]Pre-clinical

[b]Clinical trial

[c]FDA-approved drug. In parentheses after the drug is what the FDA-approved drug is used to treat in the clinic

Table 6: Drugs that potentially target (modulate) proteins that interact with SARS CoV-2 proteins as described in the reference.

COVID-19: PENTOXIFYLLINE AS A POTENTIAL ADJUVANT TREATMENT

Citation: Int J Clin Pharmacol Ther. 2020 May 25. doi: 10.5414/CP203782. Online ahead of print.
Level of Evidence: Other

BLUF

A letter written by Iranian researchers recommends conducting clinical trials to investigate the effect of Pentoxifylline (PTX) on COVID-19. PTX modulates production of IL-1, IL-4, and IL-6 and suppresses TNF-α. These are all key inflammatory markers that mediate the cytokine storm seen in COVID-19 patients. The authors believe research into these effects will elucidate the potential therapeutic value of PTX in treating COVID-19.

REMDESIVIR: REVIEW OF PHARMACOLOGY, PRE-CLINICAL DATA AND EMERGING CLINICAL EXPERIENCE FOR COVID-19

Citation: Pharmacotherapy. 2020 May 23. doi: 10.1002/phar.2429. Online ahead of print.
Level of Evidence: Other

BLUF

Authors from Canada and the United States conduct a review of literature (April 24 - May 5, 2020) on the use of remdesivir in the management of COVID-19. Early studies show promising results, which call for a large scale well-controlled clinical trial. In the absence of a vaccine, targetted pharmacotherapy can improve patient outcomes and reduce the burden on medical resources.

SUMMARY

Authors from Canada and the United States conduct a review of literature (April 24 - May 5, 2020) on the use of remdesivir in the management of COVID-19. They report the following information on remdesivir, concluding that is demonstrates potent antiviral activity against β-coronaviruses:
1) Mechanism of action: nucleoside analog inhibiting viral RNA-dependent-RNA polymerase
2) Pharmacokinetics: poor oral bioavailability, intracellular activation, first-order kinetics, metabolized by CYP450
3) Microbiology: broad-spectrum activity against coronavirus family
4) Resistance: in vitro mutations were conserved, no SARS-CoV-2 specific data reviewed
5) Animal studies: remdesivir treated monkeys showed improved outcomes
6) Clinical data: one randomized control trial, double-blind, placebo-controlled, conducted in Wuhan, China (April, 2020) showed improved clinical outcomes. Researchers call for permitting "compassionate use" of drugs by regulatory bodies so more comprehensive data is available.
7) Adverse effects: most common were transaminitis, diarrhea, rash, nausea, headache
8) Drug interactions: CYP450 enzyme altering drugs primarily
9) Dosage: for ≥ 40kg, the recommended dose is 200mg IV on day 1 followed by 100mg IV once daily on days 2 to 10

ABSTRACT

The global pandemic of novel coronavirus disease 2019 (COVID-19) caused by severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) has created an urgent need for effective antivirals. Remdesivir (formerly GS-5734) is a nucleoside analogue pro-drug currently being evaluated in COVID-19 clinical trials. Its unique structural features allow high concentrations of the active triphosphate metabolite to be delivered intracellularly and it evades proofreading to successfully inhibit viral RNA synthesis. In pre-clinical models, remdesivir has demonstrated potent antiviral activity against diverse human and zoonotic beta-coronaviruses, including SARS-CoV-2. In this article we critically review available data on remdesivir with an emphasis on biochemistry, pharmacology, pharmacokinetics and in vitro activity against coronaviruses as well as clinical experience and current progress in COVID-19 clinical trials.

FIGURES

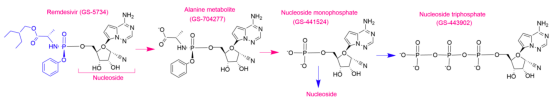


Figure 1. Molecular structure of remdesivir and its active metabolites.

A REAL-WORLD EVIDENCE FRAMEWORK FOR OPTIMISING DOSING IN ALL PATIENTS WITH COVID-19

Citation: Clin Pharmacol Ther. 2020 May 23. doi: 10.1002/cpt.1922. Online ahead of print.
Level of Evidence: Other

BLUF

Employees of Roche and Pfizer propose a framework for reporting and updating the optimal dosing information for drugs being used in the treatment of COVID-19 for varying patient subgroups (ie, chloroquine/hydroxychloroquine, lopinavir/ritonavir, azithromycin and tocilizumab/sarilumab). Determining the optimal drug dosing requires several actions, such as including biomarkers of disease and drug activity in ongoing trials, developing drug-disease models, and establishing a system to report effective treatments in real-time (figure 1).

ABSTRACT

The SARS-CoV-2 pandemic and associated COVID-19 disease are straining healthcare systems around the world with large numbers of patients becoming ill in a very short period of time, overwhelming healthcare systems in many countries. Several drugs are being repurposed into clinical trials in COVID-19 patients, ranging from drugs already well established in other diseases, such as chloroquine/hydroxychloroquine, lopinavir+ ritonavir, azithromycin and tocilizumab/sarilumab, to those such as remdesivir still in development for their initial indication (1). The opportunities for clinical pharmacology to contribute to the development of new treatments have already been described by others in Clinical Pharmacology & Therapeutics (2).

FIGURES

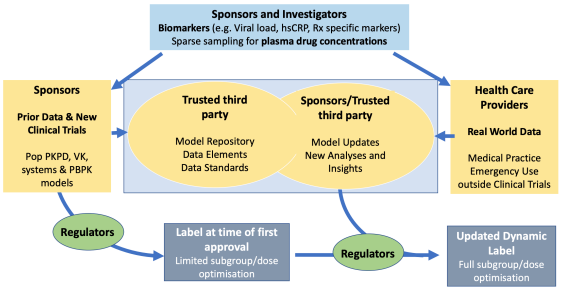


Figure 1. A model- and real world data-based framework for continuous updating of dosing recommendations and labelling of treatments for COVID-19 patients (hsCRP: high sensitivity C-reactive protein, Rx: treatment, PKPD: pharmacokinetic/pharmacodynamics, VK: viral kinetic. PBPK: physiologically based pharmacokinetic).

R&D: DIAGNOSIS & TREATMENTS

TRIALS AND TRIBULATIONS: SO MANY POTENTIAL TREATMENTS, SO FEW ANSWERS

Citation: Int Orthop. 2020 May 24. doi: 10.1007/s00264-020-04625-7. Online ahead of print.
Level of Evidence: Other

BLUF

Authors from McMaster University in Canada completed a review of ongoing clinical trials of treatments for COVID-19 on 22 April 2020 and found 341 interventional studies with 208 different therapies (Figure 1) on clinicaltrials.gov. The authors found a positive correlation (r=0.76) between the number of trials and public interest in therapies for COVID-19 as identified by Google Trends. Of these trials, a median sample size of 120 suggests that smaller, suboptimal clinical trials may be driven, in part, by public interest and larger, well-controlled studies are needed.

ABSTRACT

PURPOSE: The purpose of this review is to quantify the landscape of current clinical trials ongoing for therapies in the treatment of COVID-19. A secondary purpose is to examine the relationship between public and scientific interests in potential therapies for COVID-19. METHODS: A systematic search of clinicaltrials.gov was undertaken on April 22, 2020, to identify all currently registered clinical trials investigating potential therapies for patients with COVID-19. Public interest in the various therapies was quantified utilizing Google Trends. Public interest in hydroxychloroquine and chloroquine was plotted against the cumulative number of active clinical trials evaluating antimalarials as potential COVID-19 therapies over time. RESULTS: There were 341 interventional studies and 208 different therapies actively registered on clinicaltrials.gov whose primary aim is the treatment of COVID-19. The median sample size was 120 patients (range 4-6000) with 154 (45%) trials reporting a planned sample size of 100 patients or less. There was a strong positive correlation (r = 0.76, p = 0.01) between the number of registered clinical trials and the public interest in the top ten proposed therapies. Following the spike in public interest, the average number of new trials increased tenfold with respect to antimalarial therapies. CONCLUSIONS: The relatively small sample sizes and the number of independent trials investigating similar therapies are concerning. Resources may not be being allocated based on scientific merit and may be driven by public consciousness and speculation. Moving forward, a concerted effort focused on implementing large, well-coordinated and carefully designed multi-armed clinical trials will help to ensure that the most promising therapeutic options are rigorously studied and clinically meaningful results produced.

FIGURES

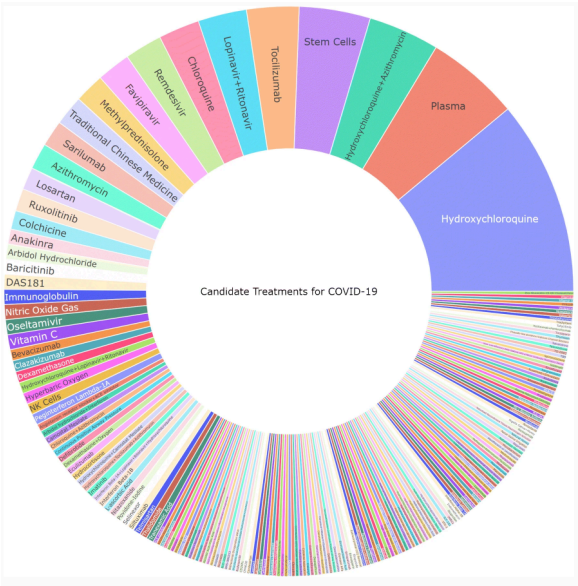


Figure 1:Potential therapeutic options. The size of each area of the sunburst chart corresponds with the proportion of trials in which the treatment is being tested (341 interventional studies, 208 different therapies)

RESOURCES

A GUIDE TO COVID-19: A GLOBAL PANDEMIC CAUSED BY THE NOVEL CORONAVIRUS SARS-COV-2

Citation: FEBS J. 2020 May 23. doi: 10.1111/febs.15375. Online ahead of print.
Level of Evidence: Other

BLUF

Investigators from Vanderbilt University discuss current research through May 2020 regarding SARS-CoV-2's virology, epidemiology, future vaccines, and current proposed treatments such as remdesivir which shows potential benefit in long term COVID-19 management. They report testings for COVID-19 are improving (faster, more specific and accessible) and this will help improved disease prevalence estimates. The authors suggest government officials use this review to help with decision-making in regards to lifting restrictions before returning back to usual day-to-day activities.

ABSTRACT

The emergence of the SARS-CoV-2 strain of the human coronavirus has thrown the world into the midst of a new pandemic. In the human body, the virus causes COVID-19, a disease characterized by shortness of breath, fever, and pneumonia, which can be fatal in vulnerable individuals. SARS-CoV-2 has characteristics of past human coronaviruses, with close genomic similarities to SARS-CoV, the virus that causes the disease SARS. Like these related coronaviruses, SARS-CoV-2 is transmitted through the inhalation of droplets and interaction with contaminated surfaces. Across the world, laboratories are developing candidate vaccines for the virus - with vaccine trials underway in the US and the United Kingdom - and considering various drugs for possible treatments and prophylaxis. Here, we provide an overview of SARS-CoV-2 by analyzing its virology, epidemiology, and modes of transmission while examining the current progress of testing procedures and possible treatments through drugs and vaccines.

FROM GUIDANCE TO PRACTICE: PROMOTING RISK COMMUNICATION AND COMMUNITY ENGAGEMENT FOR PREVENTION AND CONTROL OF CORONAVIRUS DISEASE (COVID-19) OUTBREAK IN CHINA

Citation: J Evid Based Med. 2020 May 22. doi: 10.1111/jebm.12387. Online ahead of print.
Level of Evidence: Other

BLUF

Public health researchers in Beijing reflect on China's emergency response to the COVID-19 outbreak and propose guidelines to improve risk communication and community engagement (RCCE). They recommend:

- Enhancing central communications systems at the national level
- Improving coordination between governmental and non-governmental agencies or third parties
- Promoting timely and proactive communication, including use of social media platforms, partnership with key opinion leaders, and addressing public rumors or misconceptions
- Engaging with local community organizations to promote containment strategies
- Continuing prompt international communication and cooperation at the onset of disease outbreak

ABSTRACT

Integrating risk communication and community engagement into the national public health emergency response is crucial. Considering the difficulties and challenges faced by China in the prevention and control of coronavirus disease (COVID-19) and based on interim guidelines from the World Health Organization, this article makes several recommendations addressing the outbreak in China. These include improvements in the internal governmental risk communication systems, enhancing the coordination between internal and partner governmental emergency management, and promoting public communication in response to societal concerns. Regarding these recommendations, we emphasize community engagement in joint prevention and control, confronting uncertainty and countering rumors effectively, and strengthening international cooperation and evidence-based decision making for prevention and control measures.

TRANSMISSION & PREVENTION

CLINICAL SIGNIFICANCE OF A HIGH SARS-COV-2 VIRAL LOAD IN THE SALIVA

Citation: J Korean Med Sci. 2020 May 25;35(20):e195. doi: 10.3346/jkms.2020.35.e195.
Level of Evidence: 4

BLUF

This report of two patients in Seoul, Korea infected with SARS-CoV-2 virus assessed the viral load of the SARS-CoV-2 virus in nasopharyngeal and oropharyngeal swabs, saliva, sputum, and urine cultures using rRT-PCR. Investigators determined the viral load was consistently high in the saliva and, of note, relatively higher than in the oropharynx during the subclinical period which raises concerns for unknowing transmission.

ABSTRACT

BACKGROUND: Patients with coronavirus disease 2019 (COVID-19) can unknowingly spread the virus to several people during the early subclinical period. METHODS: We evaluated the viral dynamics in various body fluid specimens, such as nasopharyngeal swab, oropharyngeal swab, saliva, sputum, and urine specimens, of two patients with COVID-19 from hospital day 1 to 9. Additional samples of the saliva were taken at 1 hour, 2 hours, and 4 hours after using a chlorhexidine mouthwash. The severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) viral load was determined by real-time reverse transcriptase polymerase chain reaction (rRT-PCR). RESULTS: SARS-CoV-2 was detected from all the five specimens of both patients by rRT-PCR. The viral load was the highest in the nasopharynx (patient 1 = 8.41 log10 copies/mL; patient 2 = 7.49 log10 copies/mL), but it was also remarkably high in the saliva (patient 1 = 6.63 log10 copies/mL; patient 2 = 7.10 log10 copies/mL). SARS-CoV-2 was detected up to hospital day 6 (illness day 9 for patient 2) from the saliva of both patients. The viral load in the saliva decreased transiently for 2 hours after using the chlorhexidine mouthwash. CONCLUSION: SARS-CoV-2 viral load was consistently high in the saliva; it was relatively higher than that in the oropharynx during the early stage of COVID-19. Chlorhexidine mouthwash was effective in reducing the SARS-CoV-2 viral load in the saliva for a short-term period.

FIGURES

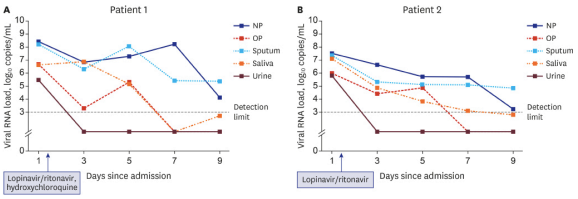
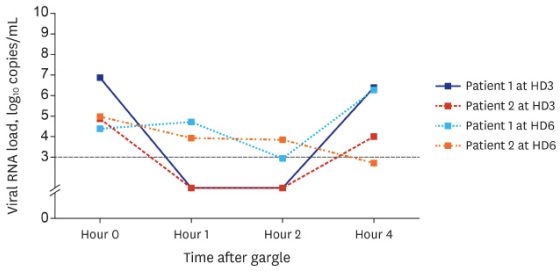


Figure 1. Viral dynamics of severe acute respiratory syndrome coronavirus 2 in patient 1 (A) and 2 (B): viral load from serial nasopharyngeal, oropharyngeal, saliva, sputum, and urine samples. NP = nasopharynx, OP = oropharynx.



MODIFICATIONS OF EMERGENCY DENTAL CLINIC PROTOCOLS TO COMBAT COVID-19 TRANSMISSION

Citation: Spec Care Dentist. 2020 May 24. doi: 10.1111/scd.12472. Online ahead of print.
Level of Evidence: Other

BLUF

Directors and residents at the Dental College of Georgia shared their COVID-19 protocol adjustments to ensure that dental emergencies are addressed while reducing COVID-19 transmission rates and ensuring adequate personnel-to-patient capacity. The protocols include alterations to triage (Figure 1) and workflow (Figure 2), modified PPE use, and temporal spacing through team rotations (Figure 3), though the authors stress that these protocols can be applied to a variety of care models.

ABSTRACT

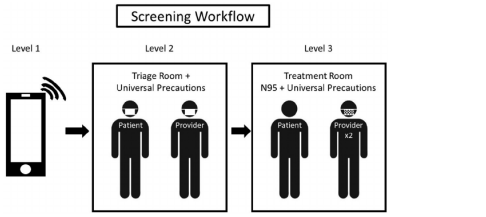
During the COVID-19 pandemic, incidence rates for dental diseases will continue unabated. However, the intent to prevent the spread of this lethal respiratory disease will likely lead to reduced treatment access due to restrictions on population movements. These changes have the potential to increase dental-related emergency department visits and subsequently contribute to greater viral transmission. Moreover, dentists experience unique challenges with preventing transmission due to frequent aerosol-producing procedures. This paper presents reviews and protocols implemented by directors and residents at the Dental College of Georgia to manage a dental emergency clinic during the COVID-19 pandemic. The methods presented include committee-based prioritization of dental patients, a multilayered screening process, team rotations with social and temporal spacing, and modified treatment room protocols. These efforts aid in the reduction of viral transmission, conservation of personal protective equipment, and expand provider availability. These protocols transcend a university and hospital-based models and are applicable to private and corporate models.

FIGURES

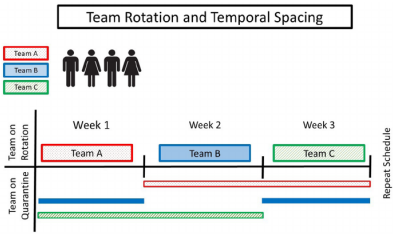
WILEY

Diagnosis	Treatments	Procedures
Emergent	Extraoral/Intraoral Swelling	Extractions Incision and Drainage
	Trauma	
	Uncontrolled Bleeding	
Urgent	Suture removal for non-resorbable or long-lasting suture	Suture Removal Temporary fillings Splinting Pulpotomy Limited Oral Exams*
	Infection	
	Emergency Department "Call" Follow Up	
	Fractured Teeth	
	Pulpitis or "tooth ache"	
NOT to Treat – Wait List	Elective Treatment requiring high/slow speed bur	Operative Root Canal Treatment Hygiene Other elective procedures
	Previously initiated root canal treatment	

WILEY



WILEY



UNDERSTANDING THE PATHOLOGY

IMPACT OF SEX AND GENDER ON COVID-19 OUTCOMES IN EUROPE

Citation: Biol Sex Differ. 2020 May 25;11(1):29. doi: 10.1186/s13293-020-00304-9.
Level of Evidence: 3

BLUF

A review study conducted in Switzerland and Germany using data collected up until 4/02/20 from China, Italy, Spain, France, Germany, and Switzerland to identify sex and gender disparities in COVID-19 (see below). The researchers analyzed sex-disaggregated data on incidences, hospitalizations, ICU admissions, and fatalities (Figure 2) (findings summarized below). They report these data were not widely available and urge all countries to start disaggregating sex data to provide more information for future investigation.

SUMMARY

Notable findings included:
Sex-specific Mechanisms:

- The number and activity of innate immune cells and inflammatory response are higher in females than in males.
- Toll-like receptors (TLR) 7 encoded on the X-chromosome leading to potential escape X-inactivation resulting in higher expression levels of TLR 7 in females and elucidating a stronger immune response to viral pathogen.

Hormone-Regulated Expression:

- Expression of ACE-2 between men and women, notably that testosterone increases ACE-2 expression and estrogen decreases ACE-2 expression (Figure 5).
- TMPRSS-2, a serine protease that facilitates the endocytosis of SARS-COV-2 into cells, is upregulated in response to androgens.

Impact of Gender-Specific Lifestyle:

- Men are more likely to engage in risky behaviors such as smoking and drinking which predispose them to develop cardiovascular and pulmonary disease
- Male predominance in case fatality in Italy, Spain, Germany, and Switzerland (Figure 3).

ABSTRACT

BACKGROUND: Emerging evidence from China suggests that coronavirus disease 2019 (COVID-19) is deadlier for infected men than women with a 2.8% fatality rate being reported in Chinese men versus 1.7% in women. Further, sex-disaggregated data for COVID-19 in several European countries show a similar number of cases between the sexes, but more severe outcomes in aged men. Case fatality is highest in men with pre-existing cardiovascular conditions. The mechanisms accounting for the reduced case fatality rate in women are currently unclear but may offer potential to develop novel risk stratification tools and therapeutic options for women and men. CONTENT: The present review summarizes latest clinical and epidemiological evidence for gender and sex differences in COVID-19 from Europe and China. We discuss potential sex-specific mechanisms modulating the course of disease, such as hormone-regulated expression of genes encoding for the severe acute respiratory syndrome coronavirus 2 (SARS-CoV2) entry receptors angiotensin converting enzyme (ACE) 2 receptor and TMPRSS2 as well as sex hormone-driven innate and adaptive immune responses and immunoaging. Finally, we elucidate the impact of gender-specific lifestyle, health behavior, psychological stress, and socioeconomic conditions on COVID-19 and discuss sex specific aspects of antiviral therapies. CONCLUSION: The sex and gender disparities observed in COVID-19 vulnerability emphasize the need to better understand the impact of sex and gender on incidence and case fatality of the disease and to tailor treatment according to sex and gender. The ongoing and planned prophylactic and therapeutic treatment studies must include prospective sex- and gender-sensitive analyses.

FIGURES

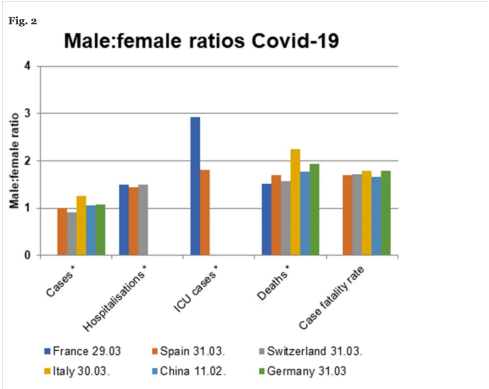


Fig. 2 Male to female ratios of COVID-19 cases, hospitalizations, intensive care unit (ICU) admissions, deaths, and case-fatality rates in European countries and China as of April 2, 2020. *absolute numbers are provided. Sex-disaggregated data were not available for all indicators

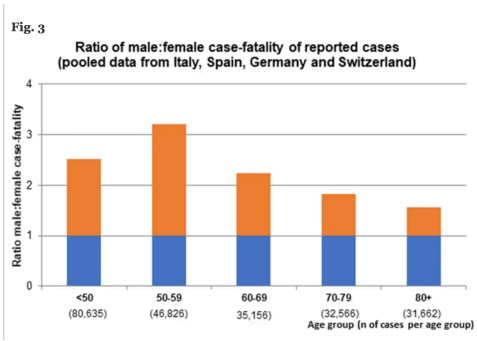


Fig. 5 Sexual dimorphism in TMPRSS2-mediated SARS-CoV2 host cell entry. Androgen receptors (ARs) are activated via heat shock proteins (HSPs) release in response to changes in intracellular testosterone concentration. ARs are then phosphorylated and translocated as homodimers into the nucleus, prompting transcriptional activation of TMPRSS2 and translation of the TMPRSS2 protein [149]. At the cell membrane, TMPRSS2 facilitates viral entry and spreads into the host cell by activating the spike proteins [24]

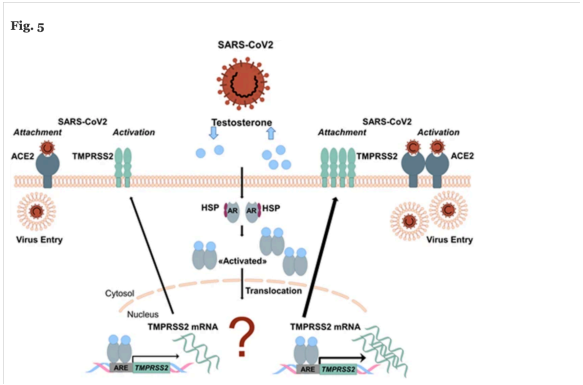


Fig. 5 Sexual dimorphism in TMPRSS2-mediated SARS-CoV2 host cell entry. Androgen receptors (ARs) are activated via heat shock proteins (HSPs) release in response to changes in intracellular testosterone concentration. ARs are then phosphorylated and translocated as homodimers into the nucleus, prompting transcriptional activation of TMPRSS2 and translation of the TMPRSS2 protein [149]. At the cell membrane, TMPRSS2 facilitates viral entry and spreads into the host cell by activating the spike proteins [24]

APOE E4 GENOTYPE PREDICTS SEVERE COVID-19 IN THE UK BIOBANK COMMUNITY COHORT

Citation: J Gerontol A Biol Sci Med Sci. 2020 May 26:glaa131. doi: 10.1093/gerona/glaa131. Online ahead of print.
Level of Evidence: 3

BLUF

Authors used the UK Biobank (UKB) to analyze 322,948 subjects (mean age 68-years-old) during March 16 to April 26, 2020 and found an association between the ApoE e4e4 allele and a positive COVID-19 test (Odds Ratio = 2.31, 95% Confidence Interval: 1.65 to 3.24, p-value = 1.19x10-6). Similar results were obtained after excluding patients with pre-existing conditions linked to COVID-19 severity (Table 1), suggesting the ApoE e4e4 allele independently increases the risk of severe COVID-19 infection.

SUMMARY

The UK Biobank (UKB) was used to analyze 322,948 subjects from March 16 to April 26, 2020, which has been the peak COVID-19 incidence. Genetic data from the cohort, currently ages 48 to 86, with mean age of 68-years-old, revealed ApoE genotypes consisting of 3% homozygous e4e4, 28% e3e4, and 69% e3e3. Of the total cohort, 622 subjects tested positive for COVID-19, out of which 37 were homozygous for e4e4, and 401 were e3e3. The association was similar after excluding patients with additional ApoE e4 associated diseases that are also linked to COVID-19 severity, such as coronary artery disease, diabetes type II, and hypertension. In conclusion, the authors state that there is an increased risk of severe COVID-19 infection with ApoE e4e4 allele (Odds Ratio = 2.31, 95% Confidence Interval: 1.65 to 3.24, p-value = 1.19x10-6).

FIGURES

Table 1 Risk of severe COVID-19, comparing participants with *ApoE* e3e4 or e4e4 to e3e3 genotypes in UK Biobank

	n	Negative or not tested	Positive	Positivity rate per 100,000	OR (95% CI)*	P-value
All						
e3e3	223,457	223,056	401	179	-	-
e3e4	90,469	90,285	184	203	1.14 (0.95, 1.35)	0.15
e4e4	9,022	8,985	37	410	2.31 (1.65, 3.24)	1.19E-06
Excluding dementia						
e3e3	222,968	222,574	394	177	-	-
e3e4	90,013	89,840	173	192	1.09 (0.91, 1.31)	0.338
e4e4	8,877	8,840	37	417	2.39 (1.71, 3.35)	4.26E-07
Excluding hypertension						
e3e3	151,018	150,792	226	150	-	-
e3e4	61,249	61,157	92	150	1.00 (0.79, 1.28)	0.981
e4e4	6,120	6,098	22	359	2.41 (1.56, 3.74)	8.21E-05
Excluding coronary artery disease						
e3e3	204,017	203,684	333	163	-	-
e3e4	82,099	81,948	151	184	1.13 (0.93, 1.37)	2.070E-01
e4e4	8,164	8,132	32	392	2.43 (1.69, 3.50)	1.65E-06
Excluding Type II diabetes						
e3e3	211,482	211,136	346	164	-	-
e3e4	85,983	85,827	156	181	1.11 (0.92, 1.34)	0.275
e4e4	8,616	8,581	35	406	2.51 (1.77, 3.55)	2.42E-07

* adjusted for sex, age at the COVID-19 test or age on 26th April, 2020 (the last test date), assessment center in England, genotyping array type, and the top five genetic principal components

CAUTION IS NEEDED ON THE EFFECT OF ALTITUDE ON THE PATHOGENESIS OF SAR-COV-2 VIRUS

Citation: Respir Physiol Neurobiol. 2020 May 21:103464. doi: 10.1016/j.resp.2020.103464. Online ahead of print.
Level of Evidence: Other

BLUF

The authors advise caution on preliminary data that suggests living at high altitude may be protective against infection with SARS-CoV-2, stating the lack of robust global data on COVID-19 and the many possible confounding variables must be considered.

SUMMARY

A recent hypothesis proposed by Arias-Reyes et al. (2020) suggests a link between living at high altitude and a decreased rate of COVID-19 transmission. High altitude areas, such as Bolivia, Ecuador, and Tibet have lower rates of COVID-19, which Reyes et al. (2020) suggest could be due to direct effects of increased UV radiation on the virus or a physiological adaptation to the

renin-angiotensin system at high altitudes that minimizes SARS-CoV-2 interaction with ACE2. However, there are many other external variables that affect these communities and could impact transmission of COVID-19 (Figure 1). It is well-established that high-altitude communities have lower rates of cardiovascular disease and obesity, both of which are risk factors for a negative COVID-19 outcome. Communities located in high altitudes also often have lower population densities. Furthermore, it was noted during the H1N1 influenza pandemic in Mexico that high altitude was associated with worse disease outcome. When all of these variables are taken into account, it is difficult to isolate high altitude as the reason that COVID-19 transmission appears to be lower in these communities.

FIGURES

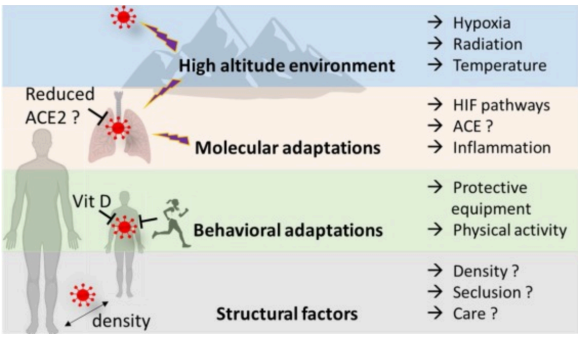


Figure 1: Parameters of high altitude exposure and adaptations. ACE2 - angiotensin converting enzyme 2, HIF–hypoxia inducible factor, Vit D–vitamin D.

ELECTRONIC NICOTINE DELIVERY SYSTEMS (ECS) AND COVID-19: THE PERFECT STORM FOR YOUNG CONSUMERS

Citation: Clin Transl Oncol. 2020 May 23. doi: 10.1007/s12094-020-02391-x. Online ahead of print.
Level of Evidence: Other

BLUF

The authors propose a mechanism by which e-cigarette mediated lung damage increases angiotensin converting enzyme 2 (ACE2) expression in the lungs (see Figure 1) and creates a "double hit effect" on the lungs of those with COVID-19, placing young adults who vape at increased risk for severe COVID-19 disease. There is currently limited epidemiological data available to support this hypothesis, but the authors believe that public health organizations, like the World Health Organization, should strongly recommend smoking and vaping cessation during the COVID-19 pandemic.

ABSTRACT

The COVID-19 pandemic caused a change in our society and put health systems in crisis worldwide. Different risk factors and comorbidities have been found that increase the risk of mortality when acquiring this infection. The use of alternative devices to the cigarette like the electronic cigarettes, the vapers have been studied widely and generators of great controversy since it has been discovered that they also produce different pulmonary affections. When developing the SARS-CoV2 infection, different theories have been generated about the greater predisposition to a worse prognosis of people who use electronic cigarettes; however, the information on this continues in discovery. A group of experts made up of oncologists, infectologists, pulmonologists, and epidemiologists met to review the literature and then generate theories about the impact of electronic cigarettes on SARS-CoV2 infection.

FIGURES

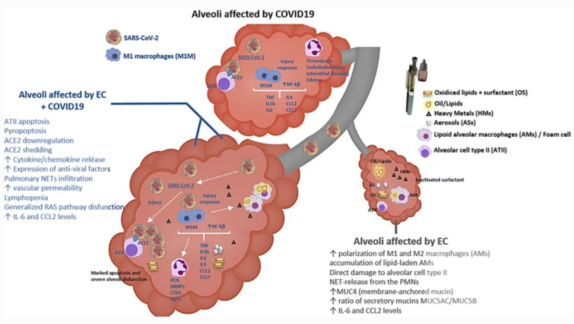


Figure 1: The double hit effect

SARS-COV-2 INFECTION LEADS TO NEUROLOGICAL DYSFUNCTION

Citation: J Neuroimmune Pharmacol. 2020 May 23. doi: 10.1007/s11481-020-09924-9. Online ahead of print.
Level of Evidence: Other

BLUF

This literature review focuses on the neurological pathology of SARS-CoV-2 and related betacoronaviruses (figures 1 & 2).
- The authors suggest both direct and peripheral infectivity pathways of the CNS with a resulting spectrum of neurological sequelae (anosmia, dysgeusia, dizziness, confusion, cerebrovascular disease, muscle pain, ataxia, and seizures).
- They highlight the lack of specific timing characteristics in the clinical course of these sequelae and recommend monitoring and surveilling for neurological symptoms in patient's with confirmed or highly-suspected COVID-19.
- Finally, based on recent isolated case reports from China, they recommend further research into SARS-CoV-2 and the development of Guillain-Barre Syndrome.

ABSTRACT

A number of neurological disease complications have been seen following infection with the severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2). While most person with COVID-19 respiratory disease demonstrate headache, nausea and vomiting, up to 40% present also experience dizziness, confusion, cerebrovascular disease, muscle pain, ataxia and seizures. Loss of taste and smell, defects in visual acuity and pain occur in parallel. Such central nervous system (CNS) signs and symptoms linked to laboratory-confirmed SARS-CoV-2 infection is often life threatening. Health care providers currently evaluating patients with neurologic symptoms need consider COVID-19 in any differential diagnosis. These considerations will facilitate prompt testing, isolation and prevention of viral transmission speeding best clinical outcomes. Graphical Abstract.

ARE ERYTHEMA MULTIFORME AND URTICARIA RELATED TO A BETTER OUTCOME OF COVID 19?

Citation: Dermatol Ther. 2020 May 24. doi: 10.1111/dth.13681. Online ahead of print.
Level of Evidence: Other

BLUF

This review released by Magna Graecia University of Catanzaro, Italy speculates a possible association of non-drug-related erythema multiforme, urticaria, and eosinophilia with a favorable outcome in COVID-19 patients after reviewing several publications with findings of persistent eosinopenia having an association with worse mortality and higher eosinophil cell count showing more favorable outcome. This finding calls for more clinical data to examine this association to determine if eosinophil count can be used as prognostic or diagnostic marker in COVID-19 patients.

SUMMARY

The role of eosinophils in the pathophysiology of COVID-19 is not fully established. However, there were several reports and case series that showed favorable outcomes with higher eosinophil counts, which also include patients with pre-existing atopic diseases, and showed unfavorable outcomes with persistent eosinopenia. With these findings, the authors speculate on a possible protective role of eosinophils and an eosinophil cell count serving as a prognostic or diagnostic marker in COVID-19 patients if more clinical data show the same association.