Clinical things in COVID

What nurses need to know

What are the s/s??

Frequently reported signs and symptoms:
fever (87.9%) Chills (11.4%) cough (67.7%)
Fatigue (38.1%) myalgia/arthralgia 14.8% shortness of breath (18.61%)
sore throat (13.9%) N/V (5.0%)
Nasal congestion 4.8% diarrhea (3.7%) Hemoptysis 0.9%)
Conjunctival congestion (0.8%)

According to WHO report: People with COVID-19 generally develop signs and symptoms, including mild respiratory symptoms and fever, on an average of 5-6 days after infection (mean incubation period 5-6 days, range 1-14 days).

Report of the WHO-China Joint Mission on Coronavirus Disease 2019 (COVID-19) https://www.who.int/docs/default-source/coronaviruse/who-china-joint-mission-on-covid-19-final-report.pdf

Hospital course?

Time from illness onset to hospital admission with pneumonia median 8- 9 days

Acute respiratory distress syndrome (ARDS) developed in 17–29% of hospitalized patients, and secondary infection developed in 10%. [2,4] In one report, the median time from symptom onset to ARDS was 8 days.[3]

20-30% in hospital w PNA needed ICU

Among hospitalized patients with pneumonia, the case fatality proportion has been reported as 4–15%.
[
Among critically ill COVID-19 patients in China, the reported case fatality proportion was 49%.

https://www.cdc.gov/coronavirus/2019-ncov/hcp/clinical-guidance-management-patients.html

China experience
Retrospective descriptive:

191 patients + COVID19 → 137 were discharged and 54 died in hospital.

91 (48%) patients had a comorbidity

HTN [30%}

diabetes [19%]

coronary heart disease [8%].

increasing odds of in-hospital death associated with

older age

higher Sequential Organ Failure Assessment (SOFA) score

(d-dimer greater than 1 μg/mL) on admission

→Median duration of viral shedding was 20·0 in survivors

The longest observed duration of viral shedding in survivors was 37 days.

→SARS-CoV-2 was detectable until death in non-survivors.

Clinical course and risk factors for mortality of adult inpatients with COVID-19 in Wuhan, China: a retrospective cohort study . (2020). Lancet

Fei Zhou, Ting Yu*, Ronghui Du*, Guohui Fan*, Ying Liu*, Zhibo Liu*, Jie Xiang*, Yeming Wang, Bin Song, Xiaoying Gu, Lulu Guan, Yuan Wei, Hui Li, Xudong Wu, Jiuyang Xu, Shengjin Tu, Yi Zhang, Hua Chen, Bin Cao*

Treatment for COVID-19

Isolation and containment to prevent spread – HCW need proper PPE!!!!

Supportive Care
Treat how you do other illness - Oxygen, breathing treatments, treat fever, hydrate, treatment of symptoms, rest .
Treat any end organ responses. Treat Sepsis according to guidelines.

Per the 1/31/2020 Coca Call: Do NOT treat the NCoV-2019 with Corticosteroids – Steroids can prolong viral replication in the respiratory tract so NOT reccomended for treatment of PNA w CoNV2019

Only use steroids if you normally would as in treatment of severe sepsis protocol or treatment of a COPD exacerbation

No anti-viral yet **No vaccine yet**

https://www.who.int/publications-detail/clinical-management-of-severe-acute-respiratory-infection-when-novel-coronavirus-(ncov)-infection-is-suspected

Steroids BAD??

The WHO says do not use. The CDC says do not use.

No steroids

Corticosteroids were widely used during the outbreaks of severe acute respiratory syndrome (SARS)-CoV1 and Middle East respiratory syndrome (MERS)-CoV,2 and are being used in patients with 2019-nCoV in addition to other therapeutics.3 However, current interim guidance from WHO on clinical management of severe acute respiratory infection when novel coronavirus (2019-nCoV) infection is suspected (released Jan 28, 2020) advises against the use of corticosteroids unless indicated for another reason.

https://www.thelancet.com/journals/lancet/article/PIIS0140-6736(20)30317-2/fulltext

?anti-inflammatory bad?

MARCH 16, 2020

expert reaction to reports that the French Health Minister recommended use of paracetamol for fever from COVID-19 rather than ibuprofen or cortisone

The French Health Minister has recommended the use of paracetamol for fever from COVID-19 rather than ibuprofen or cortisone.

https://www.sciencemediacentre.org/expert-reaction-to-reports-that-the-french-health-minister-recommended-use-of-paracetamol-for-fever-from-covid-19-rather-than-ibuprofen-or-cortisone/

No evidence ibuprofen bad for COVID-19 patients: Nurofen-maker

Posted by Reuters | Mar 16, 2020

https://www.physiciansweekly.com/no-evidence-ibuprofen-bad/

How about ibuprofen?

- Jury is out……
- Try the Acetaminophen first….

Cytokine Storm?

Cytokines are a diverse group of small proteins that are secreted by cells for the purpose of intercellular signaling and communication. Specific cytokines have autocrine, paracrine, and/or endocrine activity and, through receptor binding, can elicit a variety of responses, depending upon the cytokine and the target cell.

----the general concept of an excessive or uncontrolled release of proinflammatory cytokines is well known, an actual definition of what constitutes a cytokine storm is lacking

---there is not a good understanding of the molecular events that precipitate a cytokine storm, of the contribution such a “storm” makes to pathogenesis, or of what therapeutic strategies might be used to prevent the storm or quell it once it has started.

https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3294426/

Cytokines

Early reports on the clinical (fever, confusion) and laboratory (hyperferritinemia, lymphopenia, prolonged prothombin time, elevated lactate dehydrogenase, elevated interleukin (IL) 6, elevated C-reactive protein, elevated soluble CD25) features of critically ill patients infected with COVID-19 suggest the presence of a cytokine storm syndrome (CSS) resulting in adult respiratory distress syndrome and multi-organ failure

https://www.cdc.gov/coronavirus/2019-ncov/hcp/clinical-guidance-management-patients.html

Interim Clinical Guidance for Management of Patients with Confirmed 2019 Novel Coronavirus (2019-nCoV) Infection

ACE connection?

Human pathogenic coronaviruses (severe acute respiratory syndrome coronavirus [SARS-CoV] and SARS-CoV-2) bind to their target cells through angiotensin-converting enzyme 2 (ACE2), which is expressed by epithelial cells of the lung, intestine, kidney, and blood vessels.

The mortality in China cases have DM and HTN – many were on and ACIE or ARB

https://www.thelancet.com/journals/lanres/article/PIIS2213-2600(20)30116-8/fulltext

SARS-CoV2: should inhibitors of the renin–angiotensin system be withdrawn in patients with COVID-19?

https://academic.oup.com/eurheartj/advance-article/doi/10.1093/eurheartj/ehaa235/5810479

GI s/s ???

The incidence of GI symptoms including nausea and/or diarrhea are uncertain with some reports below 5% and others at 50%.

There have been some reports of isolated diarrhea preceding cough and fever.

https://www.gastro.org/press-release/joint-gi-society-message-covid-19-clinical-insights-for-our-community-of-gastroenterologists-and-gastroenterology-care-providers

Labs

The most common laboratory abnormalities reported among hospitalized patients with pneumonia on admission
leukopenia (9–25%)
leukocytosis (24–30%)
lymphopenia (63%)
elevated alanine aminotransferase and aspartate aminotransferase levels (37%)
Among 1,099 COVID-19 patients
lymphocytopenia was present in 83%
36% had thrombocytopenia
34% had leukopenia.
Most patients had normal serum levels of procalcitonin on admission.

https://www.cdc.gov/coronavirus/2019-ncov/hcp/clinical-guidance-management-patients.html

High Ferritin, High CRP, High LDH also noted ; Abnormal LFT's noted

Imaging

Chest CT images have shown bilateral involvement in most patients. Multiple areas of consolidation and ground glass opacities are typical findings reported to date.

However, one study that evaluated the time from symptom onset to initial CT scan found that 56% of patients who presented within 2 days had a normal CT.

CXR is said to be OK to use – CT not recommended as 1st step per CDC?

https://www.facebook.com/CDCClinicianOutreachAndCommunicationActivity/videos/2755447368067998/

https://www.cdc.gov/coronavirus/2019-ncov/hcp/clinical-guidance-management-patients.html

Of 101 CT scans of COVID-19 + patients in China:

ground-glass opacities (86.1 percent)

mixed ground-glass opacities and consolidation (64.4 percent)

vascular enlargement in the lesions (71.3 percent)

In addition, identified lesions were more likely to have peripheral distribution (87.1 percent) and bilateral involvement (82.2 percent), as well as be lower lung predominant (54.5 percent) and multi-focal (54.5 percent).

https://www.diagnosticimaging.com/ct/covid-19-pneumonia-traits-help-id-and-distinguish-virus

GGO

In radiology, **ground glass opacity** (GGO) is a nonspecific finding on computed tomography (CT) scans that **indicates** a partial filling of air spaces in the lungs by exudate or transudate, as well as interstitial thickening or partial collapse of lung alveoli.

GGO seen w lung CA cases

Ground-glass opacity (GGO) is a radiological finding in computed tomography (CT) consisting of a hazy opacity that does not obscure the underlying bronchial structures or pulmonary vessel

https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4367726/

ACR Imaging Recommendations

ACR recommends:

CT should not be used to screen for or as a first-line test to diagnose COVID-19

CT should be used sparingly and reserved for hospitalized, symptomatic patients with specific clinical indications for CT. Appropriate infection control procedures should be followed before scanning subsequent patients.

Facilities may consider deploying portable radiography units in ambulatory care facilities for use when CXRs are considered medically necessary. The surfaces of these machines can be easily cleaned, avoiding the need to bring patients into radiography rooms.

Radiologists should familiarize themselves with the CT appearance of COVID-19 infection in order to be able to identify findings consistent with infection in patients imaged for other reasons.

https://www.acr.org/Advocacy-and-Economics/ACR-Position-Statements/Recommendations-for-Chest-Radiography-and-CT-for-Suspected-COVID19-Infection

Investigational Therapeutics

There are numerous drugs currently being studied: www.clinicaltrials.gov
(the following are being mentioned in the literature the most)

Treatment: Kaletra® (also marketed as Aluvia; lopinavir/ritonavir)
Type: HIV-1 protease inhibitor indicated in combination with other antiretroviral agents for the treatment of HIV-1 infections in adults and children 14 days old and older

Treatment: Chloroquine phosphate (marketed by Bayer as Resochin®)
Type: Phosphate salt of chloroquine, a quinoline compound with antimalarial and anti-inflammatory properties. Resochin was discovered by Bayer and introduced into clinical practice in 1947 to treat malaria.

President Turmp announced this one… (NOT PROVEN or APPROVED!)
It is anecdotal and there are side effects and now it will be hard to get. People with RA and SLE on this med prior to this Presidential Medical Opinion announcement now will have hard time getting. Prior to the presidential endorsement of the product private docs were calling in for themselves and family members in droves….. Some state boards of pharmacy are now making this a PRIOR AUTH med!!

Investigational Therapeutics

- **Treatment:** Remdesivir (GS-5734)
- **Type:** Nucleotide prodrug
- **Status:** The NIH announced February 25 it will run the first U.S. clinical trial evaluating an experimental treatment for COVID-19, by assessing remdesivir in patients at the University of Nebraska Medical Center in Omaha, where some Americans with the disease are being cared for or are under quarantine. Remdesivir showed “no adverse events” when administered to the first American confirmed to be infected with SARS-CoV-2, members of the Washington State 2019-nCoV Case Investigation Team reported in a case studypublished January 31 in *The New England Journal of Medicine*.

More new drugs?

CDC notes some new therapeutics possible
https://www.cdc.gov/coronavirus/2019-ncov/hcp/therapeutic-options.html

Post-exposure Prophylaxis for SARS-Coronavirus-2

https://clinicaltrials.gov/ct2/show/NCT04308668?term=hydroxychloroquine&cond=Coronavirus&draw=2&rank=4

Self learning suggestions

- We are in unprecedented times. This seems all so unreal – but it is REAL!!
- These are some suggested YOUtube videos that might be of help understanding some of the physiology and the clinical needs we will be faced with.
- Many of us are NOT ICU RN's but we might have to learn these new skills. With the help of our trained colleagues we can help each other and our public

Non-ICU RN vent training

Those of us with NO DESIRE to be ICU may have to learn – and learn quick

It is better to have a bit of training ahead of time than it is
To be thrown into this without any idea at all.

Take advantage of trainings.

We will have to do things in different ways than we are used to.
Team nursing? Maybe non-ICU RN's paired w an ICU RN to
Supervise and avise while we care for those on ents?

Ventilator Crash Course: Quick and Dirty Guide to Mechanical Ventilation

https://www.youtube.com/watch?v=nwUp-uw3PtE&feature=youtu.be&fbclid=IwAR1q13QvRmsS7_mxjz2jBNUYgI_3p2G5AKbPmlj-v5bQh18V9lw5cpSEfDM

Mechanical Ventilation Explained Clearly - Ventilator Settings & Modes

https://www.youtube.com/watch?v=gk_Qf-JAL84

6 Easy steps to ABG interpretation

https://www.youtube.com/watch?v=WUf-cPpnrXw

ARDS

ARDS (Acute Respiratory Distress Syndrome) Nursing - Pathophysiology, Treatment

https://www.youtube.com/watch?v=3DNVxQYzYB0

ARDS and Mechanical Ventilation

https://www.youtube.com/watch?v=tarWCSbdcGA

WHY do we Prone in ARDS?

https://www.youtube.com/watch?v=FS4t5w1eCYw

Let's Safely Prone our patient

https://www.youtube.com/watch?v=Jb_WUNggwdM

Ventilators

Let's hope it does NOT get to this….. But there is a video about using one vent machine for up to 4 people. Not studied regarding cross contamination . Was used in Las Vegas duringthe mass shootings…

NOT promoting this – just noting that there issues that could happen that we would never experience in a normal healthcare environment

https://www.youtube.com/watch?v=uClq978oohY&fbclid=IwAR1mKZVyqGzL005wsBdeLpmeP0Kffn5yCuxoayQ0ZYiulDFG5_fA_eqAW5I&app=desktop