COVID-19 Bulletin from the Medical Director's Office

This bulletin addresses the current knowledge, assessment and treatment of COVID-19 for affected workers in New York State. This bulletin provides information for injured workers, providers and carriers.

Because clinical information about the optimal management of COVID-19 is evolving quickly, additional bulletins may be issued as disease patterns and treatment options are further developed.

Introduction

Novel coronavirus disease 2019 (COVID-19) is an acute respiratory infection caused by a new strain of coronavirus named SARS-CoV-2. Limited but increasing information is available about the virus and disease.

This infection affects a myriad of organ systems. The pulmonary, cardiovascular, renal, gastrointestinal, and nervous systems can be significantly impacted by COVID-19. This is of importance in terms of the Workers' Compensation population, as many workers may be exposed to and affected by this virus. While the long-term sequelae are not fully known, the vast extent of organ system damage already documented indicates that there may be considerable lasting physical disabilities and impairments in those infected workers. There is a growing body of evidence suggesting that patients with COVID-19 are at risk for developing mental health issues; furthermore, the psychiatric/psychological implications of caring for COVID-19 patients by healthcare and other essential workers must also be considered.

The clinical course of COVID-19 can range from a mild viral illness with little if any symptomatology to severe life-threatening illness. It is important to understand that approximately 80% of patients with SARS-CoV-2 infection will exhibit minor symptoms.

In general, patients with COVID-19 can be grouped into the following illness categories:

> *Asymptomatic* or Pre-symptomatic Infection: Individuals who test positive for SARS-CoV-2 but have no symptoms.
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> *Mild Illness:* Individuals who exhibit mild signs and symptoms (e.g., fever, cough, sore throat, malaise, headache, muscle pain) without shortness of breath or abnormal imaging.

Moderate Illness: Individuals who have evidence of lower respiratory disease by clinical assessment or imaging and mildly decreased blood oxygen saturation.

Severe Illness: Individuals who have more significant respiratory abnormalities including respiratory frequency >30 breaths per minute, blood oxygen saturation ≤93% on room air at sea level, ratio of arterial partial pressure of oxygen to fraction of inspired oxygen (PaO2/FiO2) 50% of the patient's lungs.

Critical Illness: Individuals who have respiratory failure, septic shock, and/or multiple organ dysfunction.

The decision to monitor a patient in the inpatient or outpatient setting should be made on a case-by-case basis. This decision will depend on the patient's clinical presentation, requirement for supportive care, risk factors for severe disease, and the ability of the patient to self-isolate at home. Patients with risk factors for severe illness require close monitoring given the risk of rapid progression to severe illness that frequently occurs in the second week after symptom onset.

Clinical Progression

Among patients who developed severe disease, shortness of breath typically developed five to eight days after symptom presentation; the median time for the development of acute respiratory distress syndrome (ARDS) ranged from eight to 12 days and corresponded with the typical time for ICU admission.

While individuals of all ages are at risk for infection, the likelihood of severe/fatal disease is highest in people aged ≥65 years.

Others at highest risk for severe COVID-19 illness include people of any age with certain underlying conditions including:

Hypertension

Cardiovascular disease

Diabetes

Chronic respiratory disease

Cancer

Renal disease

Obesity

Symptoms

While most cases (and the symptoms) of COVID-19 are mild, the disease can affect multiple body systems and organs.

Symptoms of COVID-19 may include:

- General malaise
- Fever (not in all patients)
- Cough (productive or nonproductive)
- Difficulty breathing
- Chills
- Rigors
- Muscle pain
- Headache
- Sore throat
- Loss of taste and/or smell
- Diarrhea
- Abdominal pain
- Falls (due to balance issues, weakness, hypoxemia)
- Fatigue

In more severe cases, the shortness of breath can progress to respiratory failure due to diffuse pneumonia requiring ventilatory support ranging from supplemental oxygen to intubation. Cardiovascular disorders including myocarditis, arrhythmias, and congestive heart failure have been documented. Cases reports of gastrointestinal abnormalities ranging from diarrhea to bowel perforation and liver abnormalities have been recorded. Patients with critical disease have developed renal failure with the need for dialysis. COVID-19 has been associated with a number of neurologic and psychiatric manifestations including headache, dizziness, seizure, ataxia (poor muscle coordination), visual impairment, nerve pain, stroke, encephalopathy (brain disease characterized by altered mental status), anosmia (loss of smell), and ageusia (loss of taste), depression, anxiety and PTSD. There have been increasing reports of vascular abnormalities, including blood clots and strokes, even in young patients.

Testing for COVID-19

The decision to test a worker for COVID-19 should be based upon history, symptoms, physical exam and current Center for Disease Control (CDC) and NYS Department of Health (DOH) guidelines.

Clinicians should use their judgment to determine if a patient has signs and symptoms compatible with COVID-19 and whether testing is warranted. Asymptomatic infection with SARS-CoV-2 has been reported. While many patients with confirmed COVID-19 present with fever and/or symptoms of acute respiratory illness (e.g., cough, difficulty breathing), others present with a combination of the symptoms described above.

Further considerations that may guide testing decisions are epidemiologic factors such as known exposure to an individual who has tested positive for SARS-CoV-2, and the occurrence of local community transmission or transmission within a specific setting/facility of COVID-19. Clinicians are strongly encouraged to test for other causes of respiratory illness, for example, influenza during classic flu season, in addition to testing for SARS-CoV-2, when clinically appropriate.

A diagnosis of COVID-19 is frequently made through laboratory studies utilizing a nasopharyngeal swab with newer testing modalities currently in development. In some instances, COVID-19 diagnosis can be assumed based upon clinical symptomatology and corroborating history, as many patients with early infection were unable to obtain laboratory testing. Valid documentation from a medical provider would serve as evidence of the diagnosis.

Current Workers' Compensation Board regulations allow for one COVID-19 test per work-related exposure. Routine screening evaluations for COVID-19 are neither recommended nor approved. Approvals will be granted for workers' compensation patients who require a COVID-19 test as part of a preoperative test battery prior to an approved surgical procedure.

Diagnostic Imaging

X-rays are important to diagnose pneumonia in patients with COVID-19 but are not recommended for routine screening. Providers ordering a chest X-ray in the outpatient setting should be aware that a patient with COVID-19 may have a negative chest X-ray and should manage the patient based on their symptomatology.

CT scanning should not be used to screen for COVID-19 or as a first-line test to diagnose COVID-19. CT should be used sparingly, reserved for hospitalized, symptomatic patients with specific clinical indications for CT.

In patients with cardiac manifestations of COVID-19, electrocardiograms and echocardiograms may be utilized as clinically appropriate to diagnose and monitor treatment of cardiac disease.

Electroencephalography, magnetic resonance imaging, electromyography and nerve conduction studies may be indicated in select patients with neurologic complications of COVID-19.

Pulmonary function testing may be indicated for patients with pulmonary abnormalities resulting from COVID-19.

Doppler ultrasonography may be required as clinically appropriate for evaluation of vascular abnormalities in patients with COVID-19.

COVID-19 Treatment

Although various medications have been utilized to treat COVID-19, there is limited scientific evidence to support a specific medical treatment for COVID-19. Decisions regarding medication treatment of SARS-COV-2 should be made between the patient and the treating healthcare provider in accord with CDC and DOH recommendations.

> The use of any agents for pre-exposure prophylaxis against SARS-CoV-2 is generally not recommended.
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> The use of any agents for post-exposure prophylaxis against SARS-CoV-2 infection is generally not recommended.

Antivirals: The use of Remdesivir appears to be beneficial for some hospitalized patients with severe manifestations of COVID-19 and should be considered in conjunction with their treating healthcare provider's recommendations. Remdesivir for the treatment of mild or moderate COVID-19 is not generally recommended.

Empiric antibiotics: Decisions to administer antibiotics to COVID-19 patients to treat concomitant or secondary bacterial infections should be based on the likelihood of bacterial infection (community-acquired or hospital-acquired), illness severity, and antimicrobial stewardship issues.

Antithrombotic Therapy: Antithrombotic Therapy in patients with COVID-19 should be considered in consultation with their treating healthcare provider. Patients who are receiving anticoagulant or antiplatelet therapies for underlying conditions should continue these medications if they receive a diagnosis of COVID-19. Patients with COVID-19 who experience an incident thromboembolic event or who are highly suspected to have thromboembolic disease at a time when imaging is not possible should be managed with

therapeutic doses of anticoagulant therapy as per the standard of care for patients without COVID-19.

Chloroquine/Hydroxychloroquine: The use of chloroquine or hydroxychloroquine for the treatment of COVID-19 is controversial and recent studies have indicated that the use of these medications may increase the morbidity associated with COVID-19. The use of high-dose chloroquine (600 mg twice daily for 10 days) for the treatment of COVID-19 is not recommended.

The use of the following drugs for the treatment of COVID-19 is not recommended:

The combination of hydroxychloroquine plus azithromycin (because of the potential for toxicities).

Lopinavir/ritonavir or other HIV protease inhibitors (because of unfavorable pharmacodynamics and negative clinical trial data).

Immune-Based Therapy: Immune-based therapy is generally initiated in patients with severe critical illness in a hospital-based setting.

There are insufficient data to recommend either for or against the use of COVID-19 convalescent plasma or SARSCoV-2 immune globulins for the treatment of COVID-19. The consideration of these treatments should be based on a patient's condition and recommendations of their treating healthcare provider.

The use of non-SARS-CoV-2-specific intravenous immune globulin (IVIG) for the treatment of COVID-19 is not recommended. This should not preclude the use of IVIG when it is otherwise indicated for the treatment of complications that arise during the course of COVID-19.

There are insufficient data to recommend either for or against the use of the following agents for the treatment of COVID-19:

Interleukin-1 inhibitors (e.g., anakinra)

Interleukin-6 inhibitors (e.g., sarilumab, siltuximab, tocilizumab)

The use of other immunomodulators is not recommended. Examples include:

- Interferons (because of the lack of efficacy in treatment of severe acute respiratory syndrome (SARS) and Middle East respiratory syndrome (MERS) and toxicity).
- Janus kinase inhibitors (e.g., baricitinib) (because of their broad immunosuppressive effect).

Recovery

The overall trajectory of recovery from COVID-19 remains unclear.

Recovery from post-infection fatigue is estimated to take approximately 2–3 weeks and appears to correlate with clinical duration and severity. For patients with mild to moderate pneumonia treated with oxygen supplementation, recovery is estimated to require 4–8 weeks after hospitalization or clinical recovery. Severe pneumonia and ARDS have worse prognoses. In patients with prolonged hospitalization, post-discharge physical therapy may be indicated. The long term sequalae of COVID-19 is unknown. It is reasonable to expect that some patients will have lasting pulmonary dysfunction, which may include pulmonary fibrosis. Congestive heart failure, renal insufficiency, neurologic dysfunction and vascular abnormalities may be persistent conditions that require chronic treatment.

For Medical Providers

The issue of causality regarding Workers' Compensation claims resulting from COVID-19 is of great importance. Accurate documentation regarding the patient's work exposure, such as information about the extent and nature of public contact, is critical for the injured worker to obtain their appropriate benefits. Additionally, the provider's opinion regarding the likelihood of work-related disease transmission should be included in the medical narrative. If the provider believes that the worker, in their medical judgement, is likely to have contracted COVID-19 through a work exposure, it should be reported as such.

References

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