

# COVID-19: Emerging Confections between COVID-19 and Tropical Pathogens

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## ABSTRACT

Various factors including comorbidities, risk of hospital acquired infections, use of immunosuppressive therapy; alterations of immune system by COVID-19 may be responsible for coinfections. Coronavirus infected individuals are at higher risk for having coinfections with other tropical pathogens. Care facilities to the patient suffering from coinfections with Coronavirus and other tropical are given. Patients can have coinfections with one or more pathogens along with COVID emerging simultaneously. Bacterial coinfections are the most common including *Staphylococcus aureus* and *klebsiella pneumoniae*. Human Rhinovirus and human Adenovirus are most commonly known viral infections coexist with COVID pathogens. Coinfection with *Mycobacterium tuberculosis* is also well known infection coexist with COVID-19. Identification and timely management of patient with coinfection can contribute to improved health of COVID-19. Coinfections can potentially increase the morbidities and mortalities in patients during ongoing pandemic. Highest coinfection rates were from blood borne viruses. Many studies showed respiratory virus coinfection with COVID-19. From total cases of COVID-19 in Wuhan near about 5.8% cases were infected with other types of respiratory pathogens. According to information provided about the type of pathogen and viral coinfection prevalence, it is easier for health workers to make diagnosis and give appropriate management to treat the coinfection. Secondary infections and bacterial coinfections are most commonly seen in severe influenza. Undiagnosed coinfections may have severe clinical progression associated with increased risk of hospitalization and approach management criteria and mortalities. Hence the case report provides the investigations for implications of viral and bacterial and other tropical pathogens coinfections in COVID-19 outcomes clinically.

**Key words:** Comorbidities, Immunosuppressive therapy, Undiagnosed coinfections, Hospitalization

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## INTRODUCTION

The virus was firstly observed in Wuhan, China. Most commonly patient suffer from cough, cold, joint pain, loss of taste and smell and patient eventually becomes immunologically weak and fails to fight against various other tropical pathogens which leads to emerging confections between COVID-19 and other tropical pathogens.

With already existing various endemic diseases in various regions of the world, the spread of diseases occurs due to various conditions such as migrating people and change in weather, immunity against the various pathogens, which can be seen in dengue or other airborne diseases, gives the idea of emerging confections between COVID-19 and other tropical pathogens.

The reason for rapidly spreading COVID-19 was the close person to person contact, the surface infected with virus, not taking any preventive measures such as not covering the nose and mouth by mask, not using the hand sanitizers, not washing the hands properly. The spread of COVID-19 can be majorly prevented by taking these measures into consideration.

Each and every country faced the major problem of pandemic this was the deadly rampage of Coronavirus, socioeconomic disruptions and disease burden. Apart from China, Thailand was the first country outside china to discover this deadly virus, due to its most popular travel destination for tourists across the world, most commonly from China and major popular migrate across the border which possess major threat to the localite through transmission of Coronavirus. Increasing cases were also discovered from Bhutan and Indonesia. India ranks second in cumulative cases and was the hardest hit country and third in term of cumulative deaths.

On the survey, the vital information about severity in COVID-19 and other pathogens such as tuberculosis





## DISCUSSION

### COVID-19 and dengue

Most common arboviral disease in tropical regions of world is dengue. During the ongoing pandemic the dengue endemic areas have faced the additional socioeconomic and public health impact of COVID-19 disease. Reportedly the coinfection between COVID-19 and dengue has complicated patient management and difficulty in care requirements. Aim of this review is to collate the current knowledge on outcome of COVID-19 and dengue virus coinfection [10].

Annually, there are reportedly 96 million dengue infections with 21,000 deaths across the world. Globally the incidence of dengue has increased 30 folds. Most common symptoms of dengue are fever, arthromyalgia, retro orbital pain, headache and rash. Rarely plasma leakage and severe bleeding, severe organ impairment occurs.

Due to overlapping clinical and laboratory features this coinfection has social concern. Despite of similar laboratory characteristics and symptoms, management of the diseases are different from each other. Diagnostically RT-PCR and ELISA are most commonly used. This coinfection has associated with higher morbidities and the information about coinfection is crucial for effective management. In this coinfection fever is most common clinical finding while thrombocytopenia was most common laboratory finding.

Thrombocytopenia in the coinfection has occurred from decreased platelet production due to suppression of bone marrow which was virus induced and immune mediated clearance of platelets. Immune complexes and antibodies produced in response to Coronavirus and dengue coinfection destroy platelets [11-16].

Latin America, have the most extensive dengue cases over past few years. Contribution of Brazil is around 55% of the disease cases and Brazil is also worstly affected by COVID-19 disease pandemic. Latin America is most likely to have the co-infection between COVID and dengue and is most important threat [17-22].

COVID-19 can be prevented by stopping the spread of Coronavirus through the direct contact with the help of face mask. Face mask and face shield made a tremendous effect in lowering the risk of spreading Coronavirus [23-28].

## CONCLUSION

By studying the emerging coinfections between various pathogens and COVID-19 gives the idea. Coinfection of COVID and other tropical pathogens is associated with mortality and morbidity. Clinical features and laboratory features of each infection gives us a challenge in proper diagnosis and management of cases. Delayed diagnosis of this infection can get into serious complications with

poor outcomes. Review helps to get proper diagnosis and management of the coinfection.

Research highlights the need of screening for emerging coinfections with COVID-19 patients with other tropical pathogens, which can be the most common cause of disease severity and mortalities.

High prevalence of tropical pathogens coinfection in our study, increased education in society for taking COVID vaccination to stop the transmission of Coronavirus during ongoing pandemic and reduce risk of mortality and morbidity. Encouragement in population to get COVID vaccination has become the outmost important priority to stop the highly spreading pandemic.

All the preventive measures should be taken carefully and termination of the spread of infection can be carried out through small contribution from each and every individual. COVID-19 can be prevented by stopping the spread of Coronavirus through the direct contact with the help of face mask. Face mask and face shield made a tremendous effect in lowering the risk of spreading Coronavirus.

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