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Comprehensive Understanding the Complication of Secondary Co-Infectious Severity in Post Covid-19 Patient with Keratoconjunctivities

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Opinion

The Center for Disease Control and Prevention (CDC) and World Health Organization (WHO) reported top 10 most causes of death diseases, among the list infectious disease is fifth topmost death causative disease in the globe. Especially communicable infectious diseases are burden in the world; during this COVID pandemic the hospitalized post COVID-19 patients pose antibiotic susceptibility co-infection and secondary infections. Under the incidence of microbial co-infection in COVID-19 ranges from 3 to 30% occurred [1] reported in the during COVID pandemic, 50% of patient who died, had secondary microbial infections. [2] reported that 29 out of 69 patients had bacterial/fungal co-infection. Particularly the list of bacterial pathogenic strains, Klebsiella pneumonia (8%), Staphylococcus aureus (10%), Acinetobacter sp (22%), Pseudomonas aeroginosa (21%) and Stenotrophomonas maltophilia (13%) are mainly identified from bloodstream that caused secondary infection in post COVID-19 patients. Most of these microbial organisms proliferate during mono-antibiotic resistant and multi-drug resistant in penicillin, ceftriaxone, carbapenem, vancomycin, erythromycin, Clindamycin, and methicillin inefficiency. Emergence of antibiotic resistant pathogenic microbial agents poses a severe public health threat affecting humans worldwide. The incidence rate of infectious disease increased over the decade and was associated with increased mortality and disability, reduced quality of life, and increased health-care costs, indicating an urgent need to establish prevention and to develop new therapeutic efficacy. Further, majority of the current studies as elaborated upper and lower respiratory disease and its complications on post COVID-19 patients. But not well understood in the secondary co-infection severity of post COVID-19 patients. On this approach urgent need will trigger out the severity of those microbial infection in early stage to spread other organs. So, it's essential to know the incidence and epidemiology of bacterial infection in such longer hospitalized post COVID patients, sampling from different routes of nasal mucosa, and tear fluids swabs.

Key Factors

a) Post COVID-19 infection is one of the biggest threats to global health and need to be development of antimicrobial agents.

b) Antibiotic resistance mediated infectious disease can affect anyone, of any age, in any country.

c) Antibiotic resistance occurs naturally, but misuse of antibiotics in humans and animals is accelerating the process.

d) A growing number of infections such as pneumonia, tuberculosis, gonorrhoea, and salmonellosis are becoming harder to treat as the antibiotics used to treat them become less effective/resistant.

e) In these days antibiotic resistance leads to longer hospital stays, higher medical costs and increased mortality in post COVID-19 patients.

f) Post COVID-19 patients increased the list of secondary microbial co-infectious diseases may increase the ocular and corneal dystrophies and bacterial keratoconjunctivitis in later stage.

Coronaviruses has been concerned the worldwide awareness since the outbreak of severe acute respiratory syndrome (SARS) in 2003, posed by the severe acute respiratory syndrome- coronavirus (SARS-CoV). The Middle Eastern Respiratory Syndrome (MERS) in 2012, posed by the Middle Eastern Respiratory Syndrome-coronavirus (MERS-CoV). The enduring COVID-19 global epidemic is a vivid reminder of the continues evolution of microbes. SARS-CoV-2 contribute to 79.6% progression identity with SARS-CoV [1]. These two viruses' variants bind to the similar human cell receptor namely angiotensin converting enzyme-2 (ACE2), even these viruses are genetically related to each other, but SARS-CoV-2 is much more communicable than SARS-CoV [3]. Animal to human and human to human transmission of COVID-19 happens through respiratory droplets, contaminant, and direct/indirect contact via the mucous membranes. The first report noticed on secondary infections in COVID-19 patients was from Wuhan in March 2020 (WHO, 2020), where 15% of hospitalized patients suffered secondary infections, and of those who did not survive their SARS-CoV2 infection, later 50% had a secondary infection [1]. Since then, many COVID-19 studies reporting secondary infections has been published, with a recent meta-analysis of 24 independent studies that included 3338 patients from five countries reporting that 14.3% of hospitalized COVID-19 patients developed a secondary infection, which is associated with significant morbidity, mortality and the costs associated with prolonged hospitalization [4,5]. The incidence of post-acute COVID-19 varies depending on the group of patients considered, with approximately 10% of patients whoever tested to come positive for SARS-CoV-2 virus remaining unwell past 3 weeks [6]. However, this can be as high as 74% when hospitalized patients are considered, where symptoms include breathlessness and excessive fatigue, with abnormal radiological features reported in 12% of this groups [7].

The ocular surface, which comprises the tear film and the epithelia of the conjunctiva and cornea, is closely linked to the respiratory tract via nasolacrimal system. Blinking spreads, mixes, and distributes tears and generates a pumping effect that draws tears into the lacrimal sac and then to the inferior meatus of the nose. The nasolacrimal system consequently forms a route for viruses to spread between the eye and the upper respiratory tract. The ocular surface is a potential route of such transmission through the deposition of respiratory droplets on a surface followed by hand-eye contact, or through aerosolized droplets. The concerns have been raised over whether SARS-CoV-2 could be transmitting through ocular exposure. On this pandemic in Wuhan, and globe subsequently developed redness of the eyes with several days before diagnosed with COVID-19 infection [8]. In some of the previous studies focused several patients with COVID-19 were observed to exhibit ocular anomies [9] has reported an overall incidence rate of symptomatic COVID-19 infections among eye professionals in 10 hospitals in Wuhan was 2.52% in early 2020 later it is increase more that 10% [10]. So, the present scenario the rapidly growing number of COVID-19 patients has prompted countries around the world to take measures to control and prevent the transmission of SARS-CoV-2 with ocular conjunctivae infections.

References

1. Zhou Y, Duan C, Zeng Y, Tong Y, Nie Y, et al. (2020) Ocular Findings and Proportion with Conjunctival SARS-COV-2 in COVID-19 Patients. Ophthalmology.
2. Wang D, Hu B, Hu C, Zhu F, Liu X, et al. (2020) Clinical characteristics of 138 hospitalized patients with 2019 novel coronavirus-infected pneumonia in Wuhan, China. JAMA 323:1061e9.
3. Huang C, Wang Y, Li X, Ren L, Zhao J, et al. (2020) Clinical features of patients infected with 2019 novel coronavirus in Wuhan, China. Lancet 395: 497-506.
4. (2020) World Health Organization. Coronavirus disease (COVID-2019) Situation reports. WHO (2020)?
5. Langford BJ, So M, Raybardhan S, Leung V, Westwood D, et al. (2020) Bacterial co-infection and secondary infection in patients with COVID-19: a living rapid review and meta-analysis. Clinical Microbiology and Infection 26:1622-1629.
6. Greenhalgh T, Knight M, A'Court C, Buxton M, Husain L (2020) Management of post-acute covid-19 in primary care. BMJ 13:m3026.
7. Arnold DT, Hamilton FW, Milne A, Morley AJ, Viner J, et al. (2020) Patient outcomes after hospitalization with COVID-19 and implications for follow-up: results from a prospective UK cohort 76(4): 399-401.
8. Lu CW, Liu XF, Jia ZF (2019) -nCoV transmission through the ocular surface must not be ignored. Lancet. (2020) 395: e39.
9. Wu P, Duan F, Luo C, Liu Q, Qu X, et al. (2020) Characteristics of ocular findings of patients with coronavirus disease 2019 (COVID-19) in Hubei Province, China. JAMA Ophthalmol. 138: 575-578.
10. Guan WJ, Ni ZY, Hu Y, Liang WH, Ou CQ, et al. (2020) Clinical characteristics of coronavirus. N Engl J Med 382: 1708-1720.

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