Original Article

COVID-19 and Flu (Seasonal Influenza): How scientific is the comparison?

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Abstract

Omicron, the new Severe Acute Respiratory Syndrome Coronavirus-2 (SARS-CoV-2) variant which emerged when the world was entering the third year of the pandemic, has given rise to different speculations. Many believe this is the milder version of SARS-COV-2 that will end the pandemic. It is being compared with seasonal flu (H1N1). Doctors and people have changed their behavior, considering the Omicron-induced COVID as a disease comparable to flu. This article reviews the scientific basis of such a comparison. Compliance with Public health and Social Measures (PHSM) is related to the risk perception about the disease. Reduced risk perception may lead to non-compliance to PHSM and prolongation of the pandemic.

Keywords: COVID-19, Flu, Influenza, Omicron, Pandemic

Introduction

Since the beginning of the COVID-19 pandemic, World Health Organization (WHO) has been warning about the emergence of virus variants due to the uncontrolled spread of the infection. The inequitable vaccine coverage is one of the critical factors for the emergence of new variants, and the risk of immune escape by any new variant is real[(1)].

Different variants of severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) have been identified since the first coronavirus disease 2019 (COVID-19) infection appeared in December 2019. Omicron variant is a new heavily mutated SARS-CoV-2 variant known as B.1.1.529, and it is now designated as a Variant of Concern (VOC) by the WHO on 26th Nov 2021[(2)]. No one anticipated how quickly Omicron would sweep the globe. Although the surge from the variant is starting to decline in many countries, worldwide case numbers are still on the rise.

The Common Belief

When the early report of reduced seriousness started to come in, it was speculated that reduced virulence of the virus is a tradeoff for the infectiousness. However, Jess Dawson of John Hopkins Bloomberg School of Public Health warns that Smith's "Law of declining virulence" does not fully apply to the virus where evolution is a game of chance. In some cases, viruses evolve to become more virulent[(3)].

Nevertheless, Social media, the primary source of information for medicos and non-medicos alike, was flooded with messages urging people to consider Omicron-induced COVID-19 as an illness comparable to seasonal flu. These viral messages and videos were circulated widely and may have affected the anecdotal instances of reluctance to test for COVID-19 by medicos and non-medicos. WHO has repeatedly warned against such comparisons and has highlighted the differences between the two diseases[(4)]. It also warned against the consideration of Omicron as an endemic disease like flu, as it will be too early to do so[(5)].

Methodology

To understand both the diseases Omicron induced COVID-19 and Flu (seasonal influenza); and to know the similarities and differences between the two, specific information regarding similarities and differences was acquired. Standard information was collected from central public health institutes like WHO and Centers of Disease Control and Prevention (CDC). Nearly 16 original articles (including two preprints) were consulted to understand influenza and the emerging data about COVID-19. The findings are as follows.

What is similar?

The similarity of Omicron-induced COVID-19 and Flu are mainly related to the disease presentation[(6,7)]. The common symptoms are fever, cough, runny nose, sore throat, fatigue, headache, body ache. The classic symptoms of change in or loss of taste or smell and hypoxia are not common in Omicron, and it is challenging to differentiate between the two clinically.

Both diseases are transmitted by an airborne route. Influenza is mainly droplet and fomite borne[(8,9)], while COVID -19 is mainly spread by aerosol as per the new evidence, especially in closed spaces[(10)]. The potential of spreading is very high for COVID-19, and non-compliance to Public Health and Social Measures (PHSM) may lead to a rapid rise in cases.

And the differences are many!

The mortality of disease is considered one of the indicators of its severity and decides its public health importance. After the epidemic of H1N1 in 2009, H1N1 surveillance is continued through Integrated Disease Surveillance Programme (IDSP) and then Strategic Health Operations Centre (SHOC). Mortality of H1N1 in India as per IDSP data in last 10 years is as follows: 405 (2012), 699 (2013), 218 (2014) 2990 (2015),

263 (2016), 2270 (2017), 1128 (2018), 1218 (2019), 44 (2020) and 10 (2021)[11,12]. The total number of deaths due to seasonal Influenza (H1N1) in the last ten years is 9245. Total number of reported COVID deaths as on 31st Jan 2022 are 4,96,268 (India)[13] and 56,95,305 (world)[14]. With the emergence of Omicron, India's reported number of deaths in one month (January 2022) is 14,782; which is higher than the H1N1 deaths reported in the whole decade (2012 to 2021). Every COVID-19 case in India is not being tested for the presence of Omicron by genome sequencing. Omicron has rapidly replaced the Delta variant in every country with a significant growth advantage and is the predominant strain. The number of daily deaths in India during the third wave is similar to the daily ones during the first wave[13], which is unexpected if Omicron is a supposedly mild disease. The reported COVID-19 mortality is considered to be less than the actual mortality. Model-based study[15] has claimed that the death toll in India is 6-7 times higher than reported till September 2021, which takes it to around 30 lakh deaths. WHO's preliminary global estimate states that the total number of global deaths attributable to the COVID-19 pandemic in 2020 is at least 3 million, representing 1.2 million more deaths than officially reported[16], when the official global deaths were just 18,13,188. So mortality due to Influenza and COVID-19 are not comparable.

There is not much evidence for the long-term effects of H1N1. The reported effects are temporary, with recovery in 2 months for mild and moderate cases[17,18]. There is a plethora of evidence available for the long COVID-19, which may be present in around 10 to 40% of cases. It may affect mild to severe cases and may have a duration of months to years. Many COVID-19 survivors require a reduced work schedule compared to pre-illness. Cognitive dysfunction or memory issues are also common across all age groups (~88%), even at six months follow-up[19-21].

A preprint based on autopsy findings has shown that SARS-CoV-2 is widely distributed, even among patients who died with asymptomatic to mild COVID-19, and that virus replication is present in multiple extrapulmonary tissues early in infection. Further, SARS-CoV-2 RNA was detected in multiple anatomic sites, including regions throughout the brain, for up to 230 days following symptom onset. The study shows that SARS-CoV-2 causes systemic infection and can persist in the body for months[22]. Comparing COVID-19 to respiratory illness like flu will not be scientific.

There are many unknown effects of SARS Cov-2 infection, and presently it is affecting the population of every age group. Diabetes incidence was significantly higher among those with COVID-19 than among those without COVID-19 [hazard ratio (HR) = 2.66, 95% CI = 1.98–3.56][23]. Early-life viral infections are associated with disadvantageous immune and microbiota profiles and recurrent respiratory infections[24]. Early studies have shown that SARS-CoV-2 could infect neurons in organoids, killing some and reducing the formation of synapses between them[25]. Molecular study of brain tissue from people who died of COVID-19 provides clear evidence that SARS-CoV-2 causes profound molecular changes in the brain, despite no molecular trace of the virus in brain tissue[26]. Over 30% of patients have long COVID symptoms, even 9 months after the acute infection[27]. Sperm study findings indicate an adverse but potentially reversible consequence of COVID-19 on sperm quality[28]. Research has shown a consistent biological age increase in the post-COVID-19 population, determining a Delta Age acceleration of 10.45 ± 7.29 years (+5.25 years above the range of normality) compared with 3.68 ± 8.17 years for the COVID-19-free population ($p < 0.0001$)[29]. Similar studies need to be conducted for Omicron infection, but it will take time for evidence creation. According to the CoWIN dashboard, the total number of registrations for COVID-19 immunization has shown a very sharp decline since 8th Jan 2022[30]. Reduced risk perception by the general public could be one of the reasons for the same. However compliance to pandemic control measures should continue. Much research is needed to understand the entire course of this novel disease.

Conclusion

All the available evidence shows that it is very unscientific and dangerous to consider COVID-19 by Omicron comparable to seasonal influenza (H1N1). Misinformation and implied risk reduction may lead to non-compliance to pandemic control activities, increased vaccine hesitancy, and prolongation of the pandemic with increased risk of emergence of new variants of VoHC (Variant of High Concern).

It is of utmost importance that the medical fraternity strongly practices evidence-based information sharing for proper public health risk communication. 'Perception of threat' is central for general population compliance with public health and social measures. This needs a strong sense of individual responsibility. The social media messages knowingly or unknowingly spreading misinformation and disinformation may increase un-cooperation by medicos and non-medicos alike. Anecdotal reluctance to test even the symptomatic patients is one such example. It will lead to the incompleteness of the data.

It is of the highest importance that the public needs to be educated about differences in seasonal influenza and any variant of COVID-19 and the possibilities of long-term consequences of COVID-19. The public needs to understand that "Day to day risk management" is an essential step towards "Living with COVID-19 as an endemic disease".

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