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Editorial

COVID – 19: Lessons to Learn.

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Introduction:

We witness a dramatic change, in all aspect of Life, throughout the world after Covid-19. It started in Wuhan, Hubei Province, China where few cases of atypical pneumonia presented in late November and early December 2019. Clinical picture mimicking viral pneumonia[1]. According to an unpublicized report from the Chinese government, the first case can be traced back to 17 November 2019; the person was a 55-year-old citizen in the Hubei province. There were four men and five women reported to be infected in November. The number of coronavirus cases in Hubei gradually increased, reaching 60 by 20 December and at least 266 by 31 December[2]. A coronavirus was soon identified as the cause of the outbreak and tentatively named as the 2019-nCoV by the World Health Organization. On 11 Feb 2020, the World Health Organization officially named it SARS-CoV-2 (Severe Acute Respiratory Syndrome Coronavirus-2) and the SARS-CoV-2 infection was named COVID-19.[1] One can easily understand the impact upon routine life just by seeing these numbers; As on 30 Nov 2020, there were 63, 360234 confirmed cases and 1, 475825 confirmed deaths.[3]

Coronavirus disease (COVID – 19) has taken the world healthcare, economic and political stage by storm in no time. Since the 2019, when the first case of coronavirus was diagnosed in China[4], there are now more than 58 million cases diagnosed with more than 13 million deaths reported attributed to COVID – 19.[5] This pandemic has a profound effect on world's healthcare in physical terms but also on psychological well-being and health economy. It also has had significant impact on international economy due to its direct effect on people's illness and loss of human resource but also due to efforts to control virus by lockdowns and people's buying and selling habits.[6]

As the world scientists have got together to develop evidence for determining the facts, disinformation has also been rife on the horizons esp. on social media. Science is always a developing process which means that newer facts are found and that has led to better management of COVID – 19. Now, there is consensus on many facts.

We now understand **signs and symptoms of COVID – 19** in its primary state. These are variable, but usually include fever and a cough. These may lead to high fever, fatigue, and difficulty in breathing a week later. More recently, loss of taste combined with loss of smell are also found in cases of COVID-19 with a specificity of 95%.[7]

It is also determined that its **transmission** is through respiratory tract with most through droplet although in heavy viral load situation, it can be airborne as well. That will apply to aerosol generated procedures in hospital etc. That is why a systematic review of 172 studies concluded that physical distancing of a minimum of 1 metre (but bigger the distance, better the safety) and face masks were key for prevention with smaller evidence for eye protection.[8]

In **testing**, there have been various tests developed including RT-PCR test from throat and nasal swabs which remains most reliable test with around 90% sensitivity.[9] Other tests include Nucleic acid testing, Lateral flow testing, nucleocapsid protein testing by immunofluorescence and antibodies testing.

For **treatments**, there have been various trials, but all have involved therapeutic switching or repurposing rather than developing a new drug. In that field, a meta-analysis found no robust evidence for Chloroquine/Hydroxychloroquine to treat COVID – 19.[10] Dexamethasone was found to lower 28-day mortality among those who were receiving either invasive

mechanical ventilation or oxygen alone. This was not tested for out of hospital patients.[11] WHO has concluded that use of Remdesivir has not produced any measurable differences so far. [12] Another study showed that in hospitalized adult patients with severe Covid-19, no benefit was observed with lopinavir-ritonavir treatment beyond standard care.[13] A Cochrane systematic review about convalescent plasma concluded that further studies are needed to prove whether convalescent plasma or hyperimmune immunoglobulin transfusion is effective and safe in treatment of people with COVID-19.[14] Therefore prevention and supportive treatment remains the best course.

Mortality of COVID–19 varies heavily (2.3% -14%) and data is still being evaluated to find real risk population. So far, data shows that smokers are more likely to require intensive care or die compared to non-smokers. It is also found that air pollution is an associated with risk factors. Age more than 70, Immunocompromised individuals, patients on medications, patients with pre-existing heart and lung diseases, obesity, pregnant women and genes which do not produce detectable type I interferons or produce auto-antibodies contributes to an increased health risk of COVID-19.[15]

Recent excitement has been about the **vaccine development**. There has been a race to find the best vaccine. The modalities of vaccine development concentrate on coronavirus spike protein and its variants as the primary antigen of COVID-19 infection, nucleic acid technologies (RNA and DNA), non-replicating viral vectors, peptides, recombinant proteins, live attenuated viruses, and inactivated viruses.[16] In recent days, there have been encouraging news that Pfizer/BioNTech published data that mRNA-based COVID-19 vaccine candidate, BNT162b2, was successful in achieving study's primary efficacy endpoints and a vaccine efficacy rate of 95%.[17] In the same week, Moderna also announced that mRNA-1273 vaccine showed it was 94.5% effective after phase – III trials.[18]

In these testing times, COVID–19 crisis has tested people of the world including healthcare fraternity's nerves. This has caused them to look at opinions and small, clinically or statistically insignificant studies with emotions rather than objectivity. These are ranging from doubts about real severity and contagiousness of coronavirus, government's intentions of applying mass social distancing to non-evidence-based treatments. World Health Organisation updates its advice on the myths; and it is pertinent for every doctor to visit it and find that renowned and unbiased scientific minds are updating information with respect for science and with due contempt to sensationalism.[19]

This crisis about coronavirus has taught us many messages but here are two important ones.

1) Firstly, a nation must depend on a **good robust healthcare system where public health, epidemiology and infection control is at forefront**. Since this is the way most preventable deaths can be avoided. A good public health system must work before the crisis hits. That will provide nations data about their existing healthcare needs, facilities, health economy and therefore will produce swift actions and guidelines which can be implemented in a cohesive manner. This is well implemented in countries like Germany and New Zealand. For those countries with less deaths per population despite a less organised public health system, luck has been on their side but that is not to say that further crisis will not hit them in future.
2) Secondly, the doctors must adapt to **medical evidence-based reading**. There are studies which will have statistical evaluation and peer review published in journals with high impact factor. These cannot be superseded by poor quality studies or opinion papers. A recent study found that there was low level of knowledge of basic principles of research methods and data analysis among doctors.[20] This should not be the case as general population expects doctors to be experts on medical knowledge and only by understanding research and evidence well, a doctor can lead the nation to calm and following evidence-based guidelines.

Conflict of Interest: None.

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