



The covid-19 disease with its impact on medical education

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Abstract

Background: We all over the world are gripped with a peculiar disease the Covid 19. It is a brand-new disease. We do not know much about it. It started in the wet markets of Wuhan city, Hubei province in Peoples Republic of China. To begin with no one imagined it could spread to the entire world, thought of as an innocuous illness and self-limiting. But soon some developed pneumonia and died. The pace of illness swelled up in view of its newness and very little knowledge to handle it. The Chinese travellers from Wuhan city set up this illness wherever they settled and that is how Covid 19 disease took its foot in all the continents to become a pandemic. The situation in European countries like Italy, Spain, Belgium and Switzerland were alarming. Sensing the grave danger to human lives most of the leaders opted for “Lock Down, Stay indoors” That is how all the schools, colleges, factories, work places, transport, railways, airways, markets and business houses were shut. Only essential services like banking, vegetables, fruits, grocery, milk dairy products and medicines were permitted. This also meant government took the responsibility of providing Covid care to the infected. Our medical college was to close and hostel emptied, but some brave students stood with us.

Methods: This is descriptive study of all the events happening in the medical college campus to bring about how one full year is gone by for medical students in our institution. They are all fact, facts and joined together to form paragraphs to describe events observed.

Results: First 2 months all colleges and hostels closed. No medical instruction and no clinical rotations possible. The next nine months spent with online medical instruction for students. The regulators of medical education do not approve online medical education. The sponsoring agency does not support the students. Now the colleges are open, face to face classes started, clinical rotations resumed. One academic year is lost for most students. Some brave students stood with us and had continued their studies.

Conclusion: The Covid 19 disease has impacted medical education. However, a guarded educational environment can be a wonderful experience.

Keywords: covid-19, pandemic, medical education, strategy

Introduction

The covid - 19 illness

This is a new disease with new phenomena. The disease begins with mild fever, running in the nose, mild dry cough, loss of smell and loss of appetite. The usual age group is between 30 years and 70 years. In majority of persons the symptoms are self-limiting and subside in few days to few weeks^[1-3]. But in very few persons, there is rapid progress to difficulty in breathing, severe weakness needing intensive care with oxygen support in the hospital. In some persons it may lead to death. However, it spreads fast, especially in close contact. Its clinical characters are known, Sudden, Spreads fast, especially in close contact, It is also possible that good number of persons who do come in contact with the virus, may not develop any symptoms^[4]. These features are similar to common cold or the flu as we know and blood tests, throat swabs alone can decide, if it is novel Corona virus.

The causative agent

This virus belongs Corona virus family, non-living, inert,

does not have life support structures like mitochondria and hence no independent life. It has also undergone mutation in its structure into African strain, UK strain, European strain and like. So essentially it is widely prevalent within the living forms like bacteria, fungus, plants, birds and animals. The virus can be present in air, water, surfaces for a short time and easily gets destroyed by temperature, dryness, ultraviolet rays and antiseptics. It gets the name Severe Acute Respiratory Syndrome-Corona virus -2 and measure 65-125nm. The virus can use any life form for its survival. This is the first time it struck the human beings. In the history we have heard about “Pandemic of Spanish Flu”, Hongkong flu, MERS, and SARS, are similar diseases.

The structural and functional abnormalities

The common method of infection is the entry of the virus through the mucous membrane of the nose or eyes. The common method of infection is the entry of the virus through the mucous membrane of the nose or eyes. In

majority of persons natural immune mechanisms within the body respond in controlling the virus replication and the disease. In some persons there may be delay in immune response and results in mild disease. In a few persons the virus replication is uncontrollable; infection spreads to lower respiratory airways, setting up inflammation in alveoli, immune cell infiltration, exudation, damage, consolidation and disproportionate flooding of cytokines (cytokine storm) [5-7]. This cytokine or chemokine flood can be highly lethal and kill the person.

The spread to the different continents

The Covid 19 disease originated in Chinese city of Wuhan. It was thought to be common cold. But there were unusual numbers of cases and some suffered from pneumonia. Soon the number of cases swelled up and deaths too occurred that alerted to the danger of an impending outbreak of "Special Flu (super spreader, Super killer)". The entire city of Wuhan was locked down. However by then Chinese people from Wuhan had travelled to different parts of the world and that helped in this "Special Flu" to herald a pandemic in Europe, UK, USA, Asia, Africa virtually affecting the entire mankind. The disease took the name "Covid 19", millions of people thronged the hospitals, healthcare system burst with exhaustion, new medicines tried, treated in intensive care, oxygen beds arranged alas million people died. A peculiar fear gripped the mankind forcing the rulers to enforce strict "Lock down" for people everywhere. The life came to stand still for a while.

1. Diagram showing the Covid 19 disease problem in the world.

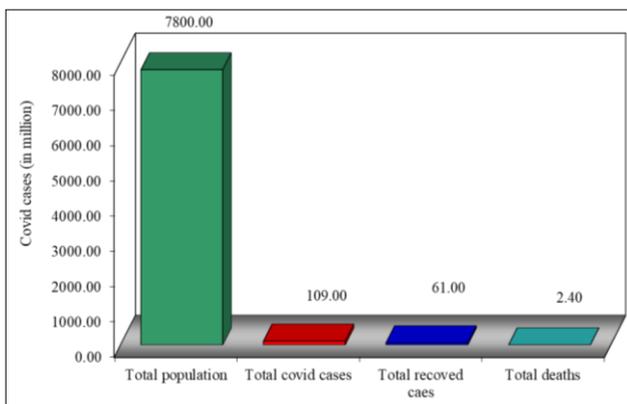


Fig 1

Impact on Medical Profession

The Lockdown: In the middle of March, 2020 leaders from several countries sensing human disaster declared an emergency order to put life to stand still, "Stay indoors till further order." They assured all the life support to their people. When we mind map "Stay indoors", just only sun rise, sun set, movement of wind, empty roads, shops closed, simply holiday, Zero Production. This is true for doctor's clinic, nursing homes, and medical colleges. The teaching hospitals and government hospitals only are permitted to work exclusively for Covid 19 care. The government took the responsibility of caring for Covid 19 disease patients testing, contact tracing and treatment on standard protocol, nationwide. The idea was to lessen confusion, streamline the handling and possible improve

quality care. On the other hand such a measure created huge rush at the government facilities stretching their capacity and capabilities to beyond their imagination, with attendant inconvenience and loss of life. What about medical education to students during Covid 19 pandemic? Some medical colleges agreed to provide online classes to continue the theoretical aspects in all forms like, classes, Problem Based Learning (PBL) sessions, Fixed Learning Modules, Clinical Scenario based discussions to enhance the knowledge and skills of students. The government medical education regulators do not approve the online education. However, the hospital based clinical rotations, Patient care activities are strictly prohibited due to safety of students and minimize spread of Covid 19. The current batch of students in the year 2019-20 is stuck in the middle, incomplete learning/teaching/assessment sessions and future uncertain when the college will reopen!!! However, the students are to pay the tuition, hostel, and other necessary bills as required and their sponsoring agency has refused to pay the bills. The people who care Covid 19 disease patients, who do contact tracing, are very much the same medical, paramedical and auxiliary healthcare personnel. They have PPEs, Protocols, Checklists, Training and accordingly provide care to Covid 19 patients. No robots being pressed into service. There are instances of healthcare personnel getting infected with Covid 19 disease and some even dying due to Covid 19. The "Patient Care Activities are "An open Medical Book" to learn for Health care professionals. Hence, we thought of empowering the students who stood by us. Through briefing on the Covid 19 disease, Advantages, Risks, Clear and consistent use of PPEs, Practice of Cough/Sneeze Etiquettes, Temperature check, Hand sanitation stations, Clean, Sanitized conveyance, so as to start clinical work. We obtained consent from Parents and, students to conduct Hospital rotations in Non Covid areas.

Time is the best healer

The stay indoors order was imposed in the night. For the first few days families managed with whatever they had and did not venture to go out. Then slowly only one person used to go out to buy essentials like milk, vegetables and grocery. This was also the occasion to see other similar individuals to exchange pleasantries. So the opinion on perhaps all that is not bad. During all these days Mobile phones provided one and only contact system.

The people realized soon not all is bad, the illness did not strike and no one died in the neighbourhood. This gave some strength, few people wearing masks ventured out to bring essentials, stood in the queue at a distance, purchased the few items in limited quantity and there was good discipline. The government officials arranged and assured a supply of essential commodities. The each new day subsequently brought more courage and belief in cleanliness.

Some students stayed with us. As per the directive of our leader class room teaching, hospital rotations and any gathering of students were suspended, most students preferred to go home. However, we requested them to be with us, alas only some hundred students stood with us. We enforced through cleanliness protocol in daily activities and slowly introduced some instructional activities as the "Unlock," the process began. In the entire period there

was guarded monitoring of all the students.

Management strategy

The main principles are-

Responsible role of parents

Adhere to basic cleanliness, wear the mask, wash hands with soap or sanitize and maintain social distancing, report fever/sore throat, body ache like symptoms to your nearest government doctor or nurse.

Students

Adhere to basic cleanliness, wear the mask, wash hands with soap or sanitize and maintain social distancing, report fever/sore throat, body ache like symptoms to your nearest government doctor or nurse.

Hospital Management

Sanitization, thermal check, simple health enquiry, provision of PPEs, early identification, testing and treatment. Besides provision of Safe working environment in the hospital with group health insurance cover for all students.

To comply with all Covid appropriate behaviours like-Wear Mask, Maintain social distancing, Sanitize hands, Follow Cough/Sneeze etiquettes was mandatory for students.

The dedicated, clean sanitized bus will carry the students to the hospital. The nursing orderly will escort the students through a separate entrance to the respective department. The students will put on PPEs and commence their departmental work. The departmental work comprises of clerking, patient examination, gathering investigation reports, preparing treatment plans, daily progress, seminars and case discussions. The departmental work comprises of clerking, patient examination, gathering investigation reports, preparing treatment plans, daily progress, seminars and case discussions. The entire process is thoroughly monitored and feedback received from the students every day. So far the work is smooth. As the days, months went by the people, doctors, healthcare persons gained experience, able to manage Covid disease better, hence good recovery and mortality less. Also good percentage of individuals practicing cleanliness, wearing masks and keeping out of crowd.

Results and Discussion

Today all the 213 countries in the world have COVID 19 disease except North Korea, Turkmenistan, Palau, Nauru, Kiribati, The Federated States of Micronesia, Tuvalu, Tonga, Samoa. The world population is 7.8 Billion, the total COVID 19 cases so far 109 Million, 0.3 Million new cases, 61 Million recovered and deaths 2.4 Million giving a prevalence rate of 1282 cases per Million, 39 per Million incidence and Death rate 1026 per Million (8).

The speed with which Covid 19 disease spread from its origin in Wuhan city to Asian countries, Europe, UK and USA struck great fear and apprehension in people and their leaders. Hence the first measure that came to their mind was "Close the borders" "Stay indoors." Surely these are blanket measures to control the infection and do work. The entire government health care system consisting of all cadres of personnel worked 24*7 days. They helped in caring for infected persons,

testing for infection, tracing the contacts, caring during isolation and quarantine. There were instances of some health care person getting infected, some testing positive for Covid disease, most recovered and some even died. The experience in the month of March, April, May, and June were crowded, huge number to care for, exhaustive dealing with social problems. Then subsequently situation eased with streamlined testing, caring and tracing activities, and tricks of treatment were understood. Though in the month of July, August, September and October the number of Covid cases swelled in huge numbers, there was good grip on the situation and managed with full precision. The months of November, December, January and February saw steady decline in the number of Covid cases, increase in number of persons recovering, decrease in number of deaths. In an educational environment, thoroughly guarded, closely monitored, tailored to the needs of medical students we were able to conduct instructions within the prescribed discipline enforced by the government. We stand by our decisions. We have saved lives, and controlled Covid 19 disease.

Conclusion

The Covid 19 disease has impacted medical education, students are one year behind in their curriculum. The "Online classes" are a small remedy. The thoroughly guarded educational environment can be a wonderful experience.

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References

1. Hamner L, Dubbel P, Capron I, et al. High SARS-CoV-2 Attack Rate Following Exposure at a Choir Practice — Skagit County, Washington, March 2020. *MMWR Morb Mortal Wkly Rep*, 2020;69:606–610. DOI: <http://dx.doi.org/10.15585/mmwr.mm6919e6>
2. Koh EBY, Pang NTP, Shoesmith WD, James S, NorHadi NM, Loo JL. The behavior changes in response to the COVID-19 pandemic within Malaysia. *Malays J Med Sci*, 2020;27(2):45–50. <https://doi.org/10.21315/mjms2020.27.2.5>
3. Abdullah JM, Wan Ismail WFN, Mohamad I, AbRazak A, Harun A, Musa KI, et al. A critical appraisal of COVID-19 in Malaysia and beyond. *Malays J Med Sci*, 2020;27(2):1–9. <https://doi.org/10.21315/mjms2020.27.2.1>
4. David J Cennimo. Coronavirus Disease 2019 (COVID-19) Clinical Presentation, *Medscape*, 2020. <https://emedicine.medscape.com/article/2500114-overview>
5. Scientific Brief. WHO. Transmission of SARS-CoV-2:

- implications for infection, 2020.
<https://www.who.int/news-room/commentaries/detail/transmission-of-sars-cov-2-implications-for-infection-prevention-precautions>.
6. Ch'ng ES, Tang TH. Anti-inflammatory properties of stingless bee honey may reduce the severity of pulmonary manifestations in COVID-19 infections? *Malays J Med Sci*,2020;27(3):150–152. <https://doi.org/10.21315/mjms2020.27.3.16>
 7. Catanzaro M, Fagiani F, Racchi M, et al. Immune response in COVID-19: addressing a pharmacological challenge by targeting pathways triggered by SARS-CoV-2. *Sig Transduct Target Ther* 5, 2020, 84. <https://doi.org/10.1038/s41392-020-0191-1>
 8. Worldometer. Covid-19 Coronavirus Pandemic. Available from: <https://www.worldometers.info/coronavirus/>