



Role of Radiographer in Covid-19 Management in Covid IPD Cases

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ABSTRACT:

In December 2019, a new type of virus called COVID-19 was extracted from lower respiratory tract samples of several patients in Wuhan, China. The current pandemic has forced a sudden and on imaginable turnaround on everyone, all levels. primarily in the way we behaved and related in the different aspects of our professional and personal lives, have been strongly influenced and changed. In the most critical time of the first wave of the pandemic in Portugal (April), for instance, people delayed medical care for fear of being infected, and that confidence has still not fully been restored. Now, we are still in the middle of this pandemic, not knowing when and how it will come to an end. SARS COV-2 was detectable for 24 hours on N95 mask, 4 hours on scrub fabric, 2 hours on latex and nitrile gloves It has been revealed that porous material such as wood, cloths and paper are unfavourable for virus survival. The survival time on permeable object is lesser than impermeable object such as glass metal and plastic. Healthcare worker should wear mask, gloves during working hours and use of PPE kit while handling confirmed COVID patients. When people venture into crowded area, they are advised to wear mask. Upon returning, the mask and clothes should be treated as contaminated.

1. Introduction

The outbreak of novel corona virus (SARS-COV-2) disease has spoken very rapidly throughout the world. WHO had declared COVID 19 as pandemic in early 2020 which is highly infectious for human being. Before COVID outbreak, only six type of corona virus were identified that could infect humans, 3 belongs to Beta, 2 belongs to alpha family, Middle east respiratory coronavirus syndrome and SARS COV-2. COVID 19 belong to genus beta coronavirus. The Delta Strain was first identified in India during the second wave of corona virus and contributed highest number of cases. Another variant of delta strain has been founded which is more aggressive, Delta plus. Over the past few decades, corona virus species crossed the Barrier into humans and make adaptive to the environment by mutating itself causing

outbreak, often fatal and cause severe respiratory syndrome.

Spread and transmission of corona virus

Human to human transmission of corona virus spread very rapidly, when an infected person is in incubation stage or showing symptoms. In some people, it shows symptoms while other remain asymptomatic¹. primary transmission of virus is through droplets ejected from infected person while coughing and sneezing and the increase in the use of checklist promotes patient safety by achieving safety goals. Checklist improves the diagnostic errors and accuracy of radiologic studies. The survival time of virus vary from different surfaces and depends on the electrostatic interaction².



2. Objectives

The objective of the study is as follow:

- outcomes and deaths during COVID 19 study.
- Prevention and management of Transmission of COVID 19 in hospital and public place.
- How to stay safe while providing critical patient care.

3. Methods

Study Type: - An observational study will be carried forward in Department of Radio-Imaging & Diagnosis of Shree Guru Gobind Tercentenary University Hospital (SGT Hospital), Gurugram, Haryana. This study will be based on Portable and stationary x ray equipment.

Study Area: - Patients coming to SGT hospital will be taken for the study.

Study Duration: - This study conducted at time period of 6 months in department of radio diagnosis & imaging at SGT hospital.

Selection Criteria

Inclusion Criteria

- Cases of Chest infections.
- Any age bar group of both sexes will be including in this study.
- Both IPD and OPD cases will be taken.

Exclusion Criteria-

- Post operative cases.
- Pregnant patients.

4. Results

The first case of COVID 19 was reported from Kerala and worldwide the first death was found in Singapore (Israel). World-wide the total number covid case till now are 53,00,25,131 and having total deaths were 62,92,498. In India from first wave till now, total number of cases registered for covid is 4.32 Cr in which 5.25 lac patients lost their lives. Majority of patients are from Maharashtra followed by Kerala and Karnataka. There were various medicines provided to the covid patients and the medicine categories were modified according to severity of the covid patients. HCQs were initially given to patients, but after some time, investigations concluded that covid patients had little effect of this drug on death.

Some guidelines recommend that this medicine for post-exposure prophylaxis, although a randomised trial indicated that HCQs did not prevent sickness when started within four days of exposure. Ivermectin, Favipiravir, Remdesivir drugs were suggested for covid patients. The WHO issued a conditional recommendation against remdesivir based on available research, whereas the IDSA advises it only for severe instances patients.

Our second objectives that our front-line workers done a great job for preventing and manage the covid patients. One of the such health care workers i.e., Radiographers were among the first-line health-care employees who could be affected by the novelties of COVID-19. Unless aerosol-generating procedures are done, the WHO recommends respiratory protection with the use of a conventional medical mask for providers as of March 4, 2020. Uses of N95 masks is mandatory when one can close contact of covid 19 patients. It is better way to protect and prevent ourselves by the cleanliness of the surrounded area. It is very important to avoid sneezing and cough at public area, time to time clean your hand with soap or sanitizers.

Third objective in our study was regarding how to manage the critical patients in a hospital. Patients with lung illnesses can be easily be diagnosed using both traditional chest radiography, sonography and chest computed tomography (CT). Radiographers must be prepared to help in the event of a covid 19 pandemic.

Patients who fail routine oxygen therapy will almost certainly need advanced oxygen therapy or ventilatory support, and hospital admissions are straining the healthcare system around the world. To prevent the spread of virus, the examination table is separated from the patient by a disposable bedspread (one person, one change, no reuse). For cleaning of CT equipment, the soft cloth dipped in 2000 mg/L chlorine containing disinfectant or 75 percent ethanol is recommended. After exposure, the second radiographer collects the cassette outside the ward and disposes of the first cover alone within that complex. The same cassette is taken to the reader room, where the third radiographer removes the cassettes from the wrapper without touching them, places them on the table, and sanitises them with disinfection solution.



Patients must wear a face mask and participate in little discussion, and the distance between the technologist and the patients must be greater than 2 meters. It was observed that after precautionary dose the chances of the severity of the disease were far less as mentioned in the studies. Therefore, after some time the number of the patients had decreased and not shifted to the critical wards. Most of the people had taken precaution by themselves and isolated themselves, Therefore the recovery rate was also increased when the people knew about the precautions guidelines which were changed time to time.

The novel human corona virus (COVID-19) has declared as a global pandemic by WHO. In last decades, the viral epidemics poses great to human health and it's also affecting other living lives. The infectious viruses have been identified as novel corona virus severe acute respiratory syndrome (SARS).

The virus is subdivided into four types: -Alpha coronavirus, Beta corona virus, Gamma coronavirus and Delta coronavirus. The outbreak of novel coronavirus (COVID-19), World Health Organization (WHO) declaring this out break a global pandemic.

By March 15,2020 the cases had reached 81048 in China and total 72600 cases outside China have been reported to the WHO from 146 countries. The symptoms of COVID-19 include fever, myalgia, fatigue, cough. The major problem of this virus (COVID-19) and similar infectious agents there is no drugs or vaccines are available and it take many months for development. The transmission of corona virus in human to human is thought to occur by infected surfaces (skin- to- skin touching infected objects). Then the covid-19 is transmission through the mouth, nose, eyes and through inhalation of exhaled virus in respiratory droplets.

The airborne transmission of the severe acute respiratory syndrome (SARS-cov 2) in human is thought direct ejection of droplets during sneezing and coughing. In March 2020 the SARS cov-2 infection cases report as 5,75,444 with 26,654 cases of confirm death by World Health Organisation India has reported 606 confirm cases with two Indian state or namely Maharashtra and Kerala have the highest known spread of the epidemic. The radiology department is the first stop for the patients who present with an acute fibril illness. The managing of

the patient plays an important role in the diagnosis of individual patients and Management in epidemic situation. First concern is that how to protect the staff of the radiology department, so they do not become infected with the virus. Before entering of the patient, they should undergo infrared temperature detection. The detection of temperature measurement detects that temperature of patients by head. Nucleic acid detection uses Reverse Transcription polymerase chain reaction (RT-PCR) to detect the pressure of viral nucleic acid in the blood.

Medical personnel who have close to the COVID-19 suspected or confirmed patients must adhere to medical protection. In medical protection includes: wearing disposable work caps, protective glasses, medical protective mask (N95), wearing disposable gloves and sanitizer.

CT-scan of chest are used as a routine test to diagnose pneumonia; this is useful to diagnosing COVID-19. High resolution CT (HR-CT) of chest is acquired during a single breath-hold. Chest x-ray is also helping for detection the lungs infections.

To avoid the transmission of COVID-19 wearing mask and social distancing are the effective tools. Proper mask reduce the transmission of droplets N95 offers higher protection than the normal surgical mask against COVID-19 for medical personal and infected patients to ensure some safety things: the medical staff treating the patient should be isolated, routine activity is must be monitored, if they have any problem such as fiver, cold, cough should be quarantined, followed preventive measures. The staff of the medical imaging is always frontline during dealing with COVID-19. They should be following the infection control advices for the droplets type transmission. They should wear surgical mask and wear PPE kit and uses proper safety while handling the suspected or conformed COVID patients.

5. Discussion

The novel human corona virus (COVID-19) has declared as a global pandemic by WHO. In last decades, the viral epidemics poses great to human health and it's also affecting other living lives. The infectious viruses have been identified as novel corona virus severe acute respiratory syndrome (SARS)⁵. The virus is subdivided into four types: -Alpha coronavirus, Beta corona virus, Gamma coronavirus and Delta coronavirus. The



outbreak of novel coronavirus (COVID-19), World Health Organization (WHO) declaring this outbreak a global pandemic. By March 15, 2020 the cases had reached 81,048 in China and total 72,600 cases outside China have been reported to the WHO from 146 countries. The symptoms of COVID-19 include fever, myalgia, fatigue, cough. The major problem of this virus (COVID-19) and similar infectious agents is that there are no drugs or vaccines available and it takes many months for development. The transmission of coronavirus in human to human is through contact with infected surfaces (skin-to-skin and touching infected objects). Then the COVID-19 is transmitted through the mouth, nose, eyes and through inhalation of exhaled virus in respiratory droplets.⁶ The airborne transmission of the severe acute respiratory syndrome (SARS-CoV-2) in human is thought to be direct ejection of droplets during sneezing and coughing. In March 2020 the SARS-CoV-2 infection cases reported as 5,75,444 with 26,654 cases of confirmed death by World Health Organisation. India has reported 606 confirmed cases with two Indian states or namely Maharashtra and Kerala have the highest known spread of the epidemic. The radiology department is the first stop for the patients who present with an acute febrile illness.⁷ The management of the patient plays an important role in the diagnosis of individual patients and management in epidemic situation. First concern is that how to protect the staff of the radiology department, so they do not become infected with the virus. Before entering of the patient, they should undergo infrared temperature detection. The detection of temperature measurement detects the temperature of patients by head. Nucleic acid detection uses Reverse Transcription polymerase chain reaction (RT-PCR) to detect the presence of viral nucleic acid in the blood. To avoid the transmission of COVID-19 wearing mask and social distancing are the effective tools. Proper mask reduces the transmission of droplets. N95 offers higher protection than the normal surgical mask against COVID-19 for medical personnel and infected patients to ensure some safety things: the medical staff treating the patient should be isolated, routine activity must be monitored, if they have any problem such as fever, cold, cough should be quarantined, followed preventive measures.

6. CONCLUSION

The WHO declared COVID-19 a public health emergency of international concern on 30 January 2020 and pandemic on 12 March 2020. In acute infectious disease epidemic, the radiology department plays an important role to diagnose the infected patients and management of the infected patients. This management requires protection for the both medical staff and uninfected patients. COVID-19 generally manifested spectrum of ground glass opacities, mixed ground glass opacities in middle and lower lung zones. Chest radiography is considered as front-line imaging modality for diagnosis of COVID-19. The uses of the equipment are required with knowledge and great care, proper discipline and training. And use proper safety while handling the suspected or confirmed patients. During dealing with COVID-19 patients make sure the IPD is properly sanitized. During taking chest X-ray use proper methods for safety and sensitize the equipment.

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