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Review Article

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Healthcare service provider's precautions for safety in Covid-19 pandemic— a review study

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Abstract

The medical practitioners, paramedical staff, and their family members are at risk of catching the coronavirus infection. Proper following of Good Laboratory Practices (GLPs) and precautionary measures are the prerequisites for the safety of healthcare workers and doctors. The in-depth study on the medical practitioners, paramedical staff, medical laboratory personnel, towards the proneness of catching of coronavirus infections is the need for the present time. Many doctors, healthcare workers have fallen prey to the novel coronavirus infection, and out of them, some died too. The incorporation of good hygiene practices can stop further infection spread among healthcare persons. The nosocomial infections i.e the infections spread in the hospital will include coronavirus infection as a major cause of death rate if proper attention was not paid in hospital having both coronavirus and other disease patients. The workplace hygiene practices for any healthcare workers and doctors start from the time of joining duty to the end time of duty. The safe disposal of Personal Protective Equipment (PPE) kits and hospital waste also ensure that the infection will not spread further in society.

Keywords Coronavirus, Covid-19, Pandemic and Public Health

Introduction

The SARS CoV-2 virus responsible for COVID-19 has infected more than 37 million people and this result in over 1 million deaths worldwide. The coronavirus outbreak during December 2019 created the attention of the whole World on this major public health issue. Coronaviruses belong to the family *coronaviridae* which includes four genera, *Alphacoronavirus*, *Beta coronavirus*, *Delta coronaviruses*, and *Gamma coronavirus*, as well as several subgenera and species. Healthcare workers are at high risk of catching coronavirus infections. Hence, they all need to be more careful as along with them their family members too in the risk zone. As there is no successful vaccine available at present in the market against the novel coronavirus the prevention is better than treatment is the best applicable slogan for the coronavirus infection the Covid-19. The prevention and control methods

comprise hand hygiene, use of personal protective equipment-PPE, and waste management of the used medical materials. The PPE kits must include gloves, mask, and gown and in case of airborne high infections than Face protection, goggles and mask or face shield, also added in the PPE kit. According to the Indian Medical Association (IMA) the Covid-19 data as of September 16, 2020, total numbers of 2,238 doctors were found infected by Covid-19, and out of the 382 lost their lives.

The World Health Organization (WHO) issued a laboratory bio risk management for laboratories handling human specimens suspected or confirmed to contain novel coronavirus: Interim recommendations. As per these recommendations, laboratory personnel ethics and practice on day to day basis are described in detail. As per these recommendations the laboratory manager's staff needs to be trained for working with precautions. As recommended by the

World Health Organization the safe practice and decontaminations to be followed during working in the laboratory. WHO laboratory Biosafety Manual 3rd edition is also available for references on the Biosafety practices to be executed by healthcare workers. Good housekeeping practices can keep the laboratory clean and dry. In the laboratory suitable power supply, adequate backup, access to biological safety cabinets, and equipment all are prerequisites and necessary for safe laboratory working practices.

There are presently two major types of COVID-19 tests: investigative tests that look for active coronavirus infection in your mucus or saliva, and blood tests that search for antibodies. As per the World Health Organization classifications of laboratories, various laboratory facilities were and these facilities were classified as in biosafety levels 1,2, 3, and 4. The biosafety levels are on basis of containment levels. Biosafety level is decided on basis of a composite of the design features, construction, containment facilities, equipment, practices, and operational procedures required for working with agents from the various risk groups.

Use of telemedicine to reduce the chance of SARS CoV-2 virus infection

Information and communication technologies (ICTs) can be used in medicine and healthcare delivery system as it has the potential for smooth delivery of the healthcare system to the remote residing public. Telemedicine uses ICTs for the timely delivery of healthcare services. The World Health Organization (WHO) recognized the Global Observatory for eHealth (GOe) to study and analyze the welfares that ICTs can bring to health care and patients' wellbeing. The Observatory is responsible for decisive the status of eHealth resolutions, including telemedicine, at the national, regional, and global levels, and providing WHO's the Member States with reliable information and guidance on best practices, policies, and standards in eHealth. In the case of the coronavirus pandemic, the use of telemedicine can refrain from the direct contact of patients with doctors and healthcare service providers. Telemedicine is an alternate way to provide healthcare services without face to face contact. In India telemedicine benefitted far-reaching poorer communities through telemedicine.⁴ After the lockdown, many governments, hospitals, e-pharmacies have implemented telemedicine in their worker wellness plans. The surge in teleconsultations tracks the long-undecided telemedicine guidelines which were finally issued by the ministry of health and family welfare (MoHFW), in association with NITI Aayog and Board of Governors (BoG) Medical Council of India (MCI). This allowed the registered medical practitioners to use teleconsultations. This act is truly necessary for the pandemic epoch as hundreds of doctors have lost their lives due to insecure exposure to the virus. The health care services need to be delivered to remote locations where distance is a major factor. This is well performed by all health care professionals using information and communication technologies for the exchange of valid information for the diagnosis, treatment, and prevention of disease and injuries, research and evaluation, and for the continuing education of health care providers, all in the interests of advancing the

health of individuals and their communities. These telemedicine guidelines will benefit to utilize the perspective of these innovations in technology for health care delivery. (Telemedicine Guidelines, 2020)

Nosocomial infections and Covid-19

Nosocomial infections are those which can acquire by the patients for which he/she has not admitted. Carter *et.al* in their study published on 21 July 2020 reported that the report outcomes for patients with a nosocomial infection that among the COVID-19 cases studied, 12.5% of infections were due to transmission in hospital. Also, a lower mortality rate with an NC infection was observed among the patients. Patients with NC infection had to stay a longer length in hospital.

Conclusion

As there is no effective vaccine available in the market against Covid-19 the only safe method is to take precautions in the form of masks, gloves, and gown and PPE kits. Telemedicine use by medical practitioners needs to be promoted and adapted to a wide scale. As teamwork, if a hospital organizes patient management because of the Covid-19 pandemic the further spread of infections during treatment can be prevented. There is a need for proper disposal of hospital waste materials also.

Conflict of Interest

Authors hereby declare no conflict of interest.

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