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Emergency Preparedness and Innovative Response Plan for Smooth Congregations during COVID-19 pandemic: An Urgent Need for Comprehensive Approaches to Tactically Resolve Risk of SARS-CoV-2 or MERS-CoV Transmission

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ABSTRACT

Viral pathogens are mounting day by day and it is anticipated that soon viruses would emerge as highly dangerous entities. Recent pandemic of COVID-19 due to Severe acute respiratory syndrome (SARS) coronavirus 2 (SARS-CoV-2) caused millions of deaths, and still situation is out of control worldwide. Multiple epidemics of Middle East respiratory syndrome coronavirus MERS-CoV reported from Kingdom of Saudi Arabia and 21 other countries within three years have influenced international health organizations for emergency preparedness and response. After Saudi Arabia, second largest MERS-CoV outbreak occurred in the Republic of Korea which caused 186 infections and 36 deaths. Among Muslims, Hajj and Umrah are deeply engraved to their souls, and visiting Holy places of Makkah and Madinah (Cities of Saudi Arabia) is part of Religion Islam. Therefore restricted permission to visit such places is not the permanent solution and several challenges need to be tackled scientifically. By acquiring adequate vaccination against SARS-CoV-2 or similar viruses and adopting international health standards, the pandemic related threats can be rectified.

KEYWORDS

SARS-CoV-2, MERS, Hajj, Umrah, Global Health.

INTRODUCTION

Since 2019, Muslims across the world, due to travel related restrictions and high risk of viral transmission in public gathering, have not been able to visit Saudi Arabia for such religious congregations. Muslim pilgrims across the globe visit Saudi Arabia during the Hajj and Umrah, using special dress commonly known as Ihram. The Hajj is a mandatory religious activity of five-day period, starting on 8 and ending on 12 Dhul-Hijjah of Islamic Calendar, performed every year by the Muslim adults who are financially and physically strong to support their families during their absence; at least once in their life time. While, Umrah is a pilgrimage to Mecca, Saudi Arabia, performed by Muslims across the world at any time of the year. Ramadan is the ninth month of the Islamic calendar during which Muslims do not eat or drink from sunrise to sunset. Fasting during Ramadan is one of the five fundamental principles of Islam. During Ramadan the number of visitors coming to Makkah and Madinah, exceeds even more than other months (1).

Viral pathogens are mounting day by day and it is anticipated that soon viruses would emerge as highly dangerous entities (2, 3). Recent pandemic of COVID-19 due to Severe acute respiratory syndrome (SARS) coronavirus 2 (SARS-CoV-2) caused millions of deaths, and still situation is out of control worldwide. Multiple epidemics of Middle East respiratory syndrome coronavirus MERS-CoV reported from Kingdom of Saudi Arabia and 21 other countries within three years have influenced international health organizations for

emergency preparedness and response. After Saudi Arabia, second largest MERS-CoV outbreak occurred in the Republic of Korea which caused 186 infections and 36 deaths. Among Muslims, Hajj and Umrah are deeply engraved to their souls, and visiting Holy places of Makkah and Madinah (Cities of Saudi Arabia) is part of their Religion. Therefore restricted permission to visit such places is not the permanent solution and several challenges need to be tackled scientifically. By acquiring adequate vaccination against SARS-CoV-2 and others, by adopting international health standards, the pandemic related threats can be rectified.

Since 2019 starting from China, the SARS-CoV-2 pandemic has caused severe loss in term of mortality and economy. Considering the rampant SARS-CoV-2 spread, the vaccination against COVID-19 is extremely challenging as no one is safe until everyone is safe. Currently the COVID-19 vaccines, based upon mRNA technology, viral vector, in-activated viruses are not sufficient to immunize people across the world. To date, cure against COVID-19 is not available, and several molecular mechanisms involved in viral replication are unknown. MERS-CoV is also a zoonotic virus and member of the beta group of coronavirus, considered to be significantly distinct from endemic human beta-coronaviruses (common-cold coronavirus) and SARS coronavirus (4). No vaccine or preventive drug is available against MERS-CoV. In 2012 the virus was initially reported from the Kingdom of Saudi Arabia, while in July 2015, the virus have been reported

in 21 countries depicting widespread in last three years. (5-8). The number of MERS-CoV infections have been increased up to 1,231 in Saudi Arabia (9, 10). In the Republic of Korea 186 people were infected and 36 died of MERS (11, 12). Besides, SARS-CoV-2 as global health problem, due to consistent epidemics of MERS-CoV during 2014, 2015 and 2016 in different countries the MERS-CoV has also become major threat to global health.

Usage of nano-based antiviral coatings at elevators or public areas is an innovative approach to combat viral infections (13). Similarly, introduction of Ihram with Nanotechnology is a significant innovative approach, which can maintain the safety among pilgrims. The innovative approach would support precautionary and preventive measures, therefore should be supported by governments for mass production. Furthermore, it will prevent pathogen spread. The Saudi Standards, Metrology and Quality Organization (SASO) have already approved the usage of Ihram with Nanotechnology (14). Saudi Government provides special medical care and assistance for the visitors during Hajj and Umrah, however due to current pandemic the healthcare departments and facilities are needed to be upgraded with advanced technology. To cope up with the gap, besides general physicians, introduction of molecular medicine specialists, virologist, epidemiologists, and scientists at specialized hospitals or medical centers for consultation can further improve surveillance, and equip for timely develop disaster preparedness programmes and early warning systems. The COVID-19 pandemic has amplified need for robust estimates of routine immunization coverage. Utilization of a multi-step modelling approach to generate comprehensive

estimates of COVID-19 vaccine covered individuals. Separate Quick Response code or vaccination cards for the immunized people, can be checked-in at safe zones. Government operating Ministries of Religious Affair with Council of Islamic Ideology can add value to joint efforts of international cause to maintain safe distancing, frequently using hand washes and following standard operating procedures to facilitate Hajj and Umrah congregations smoothly.

DECLARATION:

Ethics approval and consent to participate:

The study has been approved by ethical review board of Islamabad Diagnostic Center Pakistan, and informed patients concern was obtained.

Consent to publication:

All authors approved the submission of the manuscript for publication

Availability of data and material:

The data is available and can be used for the academic or research purposes.

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US is principal investigator of the study, conceived the study, wrote manuscript and analyzed the data; ZZZ, SRU, AAK, and EK assisted in manuscript writing and data analysis.

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