Corona Virus- Facts Today! Unknown Tomorrow? (For Developing Countries)

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Abstract

Purpose: The need to keep abreast of current trends on the novel Corona Virus is absolutely necessary. This will assist in preventive measures rather than treatment for the developing countries which are also of the low income countries with poor health facilities.

Discussion: Coronaviruses are positive stranded RNA viruses that are enveloped, with high mutation and gene recombination rates. These make them ideal for possible pathogen evolution. The outbreak of the 2019 novel corona virus COVID 2019 (2019-nCoV) and its spread worldwide has become a public health concern. The World Health Organisation on January 26 declared it a disease of 'Public Health Significance.' Historically coronaviruses had been in existence since 1937 in mammals, birds and later in man in the 1960s in man. The reservoirs and origin of transmission are thought to be from infected birds or mammals to man, but now seen to have man to man transition. Now seen have man to man transition. The epidemiology and symptoms are similar to SARS-CoV and MERS-CoV.

The article further discusses the possible ways of transmission, identification, prevention and treatment.

Conclusion: COVID-2019 has come to stay. Since there is no possible vaccine and known cure, it is better to take precautionary measures as stipulated by WHO. Attitudinal and cultural modifications are necessary to disrupt bird and cattle to man transmission in Africa. Furthermore, the developing countries need to be at alert. Travel restriction adherences, personal and environmental sanitation, as well as awareness by keeping updated on global spread are also very essential. Further researches are ongoing.

Keywords: Corona Virus; SARS-CoV; MERS-CoV

Introduction

The novel Corona virus has become a pandemic. The need to keep abreast of current trends on the novel Corona Virus is absolutely necessary. This will assist in preventive measures rather than treatment for the developing countries which are also of the low income countries with poor health facilities. The known fact that there is yet no cure makes it absolutely essential for everyone to be aware of the simple methods of prevention.

Discussion

Coronaviruses are positive stranded RNA viruses that are enveloped, with high mutation and gene recombination rates. This makes them ideal for possible pathogen evolution [1]. The name Corona was derived from its appearance like that of a crown (Lain word). Coronavirus was first isolated in 1937 from an infectious bird with bronchitis. In over 70 years, it's been found that coronaviruses can infect all classes of lower mammals and birds e.g. rats, mice, dogs, cats, cattle, turkeys, pigs and horses [2]. Recently, man has also become the target of infection.

Of the human corona viruses (HCoV), the OC43 (beta coronavirus) 229E, 229E (alpha coronavirus), NL63 (alpha coronavirus), and HKUL (beta coronavirus) out of the 7 strains available are usually responsible for common cold [2]. The HCoV are thought to have

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been isolated from the human infected nose in 1960s. The HCoV are also responsible for the SARS (severe acute respiratory syndrome) that broke out in China in 2002. SARS-CoV also affected the intestinal tract. MERS-CoV caused the Middle East Respiratory Syndrome (Arabian Peninsula) in 2012 spreading to an epidemic in Korea in 2015 [2,3].

Recently, a new coronavirus infection outbreak occurred in Wuhan, China where the first case was identified on 1st December 2019 (2019 Novel Coronavirus, 2019-nCoV). The origin of infection was claimed to have been through transmission from infected animal in the sea food market to man. Thereafter, it became a man-man transmission. The interesting discovery is that it resembles the SARS of 2002 ecologically and epidemiologically [4,5]. Incubation period is estimated to be between 2 - 14 days. Symptoms are also expected to appear within 2 - 14 days (WHO-CDC). This was why the ship heading to Japan had the travellers being quarantined for 2 weeks before being let out to freedom in Cambodia.

On February 11, 2020, WHO announced the official name for the 2019 novel corona virus causing the outbreak as COVID-19. So far many lives have been claimed. The symptoms are very non-specific. They include fever, headaches, sneezing, fatigue, malaise, body aches, sore throat, dry cough. Complications in the respiratory tract such as pneumonia usually leads to death. Despite the international awareness, the Virus is spreading from country to country, including USA. Egypt in Africa has just recorded its 1st case. The mode of spread is thought to be from the secreted fluid during sneezing and or coughing, from an infected person coming in contact with another person, who shakes or touches the person or surfaces. It can also be transmitted through eyes, nose, mouth or contact with feces [2,6].

WHO advises rest, drinking enough water, taking analgesics, using clean humidifiers, cool mist vaporizers, avoiding of smoke and smoking for persons diagnosed with the virus.

Towards prevention, the World Health Organization (WHO) Health Emergencies team, together with technical experts floated an online course for health professionals and interested general public all over the world since 26 January. This was 4 days before the 2019-nCoV outbreak was declared a public health emergency of international concern.’ It’s been acknowledged that more than 3000 health professionals and the general public register daily. This shows the level of interest the disease has impacted on everyone worldwide [7].

**What does the future hold for Africa?**

Currently there is no cure and vaccines cannot be developed from this virus. This is because CoV antibodies do not last long (maximum of 4 months). Also, the antibodies for one strain may not be useful for other strains. This will make gauging the impact on national economies and public health difficult all over the world. This is a very serious health threat to the developing countries where, health facilities are grossly inadequate.

Scientists have been able to replicate the virus. This allows for early detection and possible treatment in infected persons without the symptoms? Is the dilemma presently occurring? 2019-nCoV is now the newest disease being treated without cure. This statement can be argued in the sense that the degree of symptoms determines the outcome. Mild symptoms will resolve leaving antibodies while those with severe symptoms may end up fatal.

It is also not very clear how rapidly 2019-CoV will spread as compared to other highly contagious viruses.

However, research is also an integral part an outbreak response,” said WHO Director-General Dr Tedros Adhanom Ghebreyesus. WHO, in partnership with GloPID-R, a global alliance of international research funding organizations, held a meeting and went into partnership for steps that will tackle the crisis and stop the outbreak” through research funding said the Chair, Professor Yazdan Yazdanpanah. They also emphasized that “Equitable access must be guided by ethical considerations at all times.” This will make sure that data is shared and reach those most in need, particularly those in lower and middle-income countries. The deliberations will form the basis of a research and innovation roadmap charting all the research needed by researchers and funders to accelerate the research response” [6].
We also need to come to terms with its zoonotic-viral transmission process of infection. This will help modify the trade risk especially in Africa where there is a very large appetite for bush meats such as bats. The culture therefore allows the sale for economic purposes. There is a need to be afraid for the possible evolution of cross-viral strain from animals to man. There were still pockets of Ebola recently in central Africa (2016 - 2018). Change in food habits and personal and environmental hygiene will go a long way to prevent spontaneous evolution of reservoirs of these viruses. In the Middle East, preventing infection and control measures for camel farms would be a positive step forward [38].

WHO and Centre for Disease Control have also put in place prevention strategies on the guidelines for prevention and transmittance of the virus to aid health care professionals. Examples of which are “Resources for Hospitals and Healthcare Professionals Preparing for Patients with Suspected or Confirmed 2019-nCoV”. To aid healthcare professionals and hospitals, CDC has developed two checklists that identify key actions that can be taken now to enhance preparedness for potential or confirmed patients with 2019 novel coronavirus (2019-nCoV) [9] and Hospital Preparedness Checklist for Suspected or Confirmed 2019-nCoV Patients. Others include “2019 Novel Coronavirus (2019-nCoV) Hospital Preparedness Checklist pdf icon [PDF] and Healthcare Personnel Preparedness Checklist for 2019-nCoV pdf icon [PDF] free online.

Recently, anti-malaria drugs have been proposed to kill the virus. These include chloroquine [10]. The deputy head of the China National Center for Biotechnology Development under the Ministry of Technology, Sun Yanrong gave a report that those on Chloroquine treatment had faster recovery. Remdesivir and Fapilavir are other drugs that are presently undergoing clinical trials and understudy by the Chinese to treat this virus [11]. Scientists have also turned to the shelved SARS vaccine of 2003 given to treat this virus [11]. If these researches become eventually confirmed, then it will be a very good news for Africa. Treatment would become cheap and there would be no cause for the fear of nCoV-2019. Until then, it is important to take cognizance of the fact that economic, health and social malaise which can cause a lot of destruction in the lives of people in the developing countries could occur, should this outbreak spreads.

**Conclusion**

The developing countries need to be at alert. Travel restriction adherences, personal and environmental sanitation, as well as awareness by keeping updated on global spread are also very essential. Furthermore, attitudinal and cultural modifications are necessary as preventive measures to disrupt bird and cattle to man transmission in Africa. Further researches are ongoing.

Prevention is better than cure!
Figure 2: Microscopic images from corona virus patient. Courtesy China’s National microbiology centre.

Figure 3: Microscopic images from corona virus patient. Courtesy China’s National microbiology centre.

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