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Understanding the virology of novel coronavirus [nCov-19]

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Abstract
For many centuries, pathogenic micro-organism (Viruses), were the leading causes of death in both developed and the developing nations of the world. These deaths resulted from exposure to organism that produced diseases such as Hepatitis, Acquired immune deficiency syndrome, Human papilloma virus, Ebola fever, Lassa fever, Hanta virus, Zika virus, Influenza and the most recently occurring one, the so-called latest, viral diseases of the millennium: Severe acute respiratory syndrome (Sars-Cov2), Middle east respiratory syndrome (Mers) and Novel Coronavirus (nCov-19). These diseases have for centuries ranked with war and famine as major threats and challenges to public health movement as well as progress and survival of human species. However, despite, the advances in science and technology prompt public control and preventive measures put in place by epidemiologist, public health practitioners as well as clinical laboratory scientists. Yet, the current catastrophic wide spread of the novel coronavirus nCoV-19, confirms that uncontrolled highly infectious diseases can still leave their mark on society.

Keywords: Coronavirus, Naming the Virus, Virology of Coronavirus and Vaccines.

Introduction
For many centuries, pathogenic micro-organism (Viruses), were the leading causes of death in both developed and the developing nations of the world. These deaths resulted from exposure to organism that produced diseases such as Hepatitis, Acquired immune deficiency syndrome, Human papilloma virus, Ebola fever, Lassa fever, Hanta virus, Zika virus, Influenza and the most recently occurring one, the so-called viral disease of the millennium; such as Severe acute respiratory syndrome (Sars-Cov2), Middle east respiratory syndrome (Mers) and Novel Coronavirus (nCov-19). etc. these diseases have for centuries ranked with war and famine as major threats and challenges to public health movement as well as progress and survival of human species. These diseases remain the number one cause of deaths and disabilities especially among children and older individuals world-wide and have been extricable linked with human health, hammering (agricultural systems, economic activities, education and social integration), and affecting the advancement of societies of men as well as human evolution for years. However, despite, the advances in science and technology prompt public control and preventive measures put in place by epidemiologist, public health practitioners as well as clinical laboratory scientists. Yet, today, we have a new respect for infectious diseases the so-called novel coronavirus [nCoV-19], which is threaten millions of peoples' life world-wide. The current catastrophic wide spread of the novel coronavirus nCoV-19, confirms that uncontrolled highly infectious diseases can still leave their mark on society.

Historical Background
The corona virus comes from the family of viruses called coronaviridae viruses. This includes other viruses such as severe acute respiratory syndromes (SARS-coV), which infected more than 8,000 people and killed nearly about 813 people in 2002-2003. Another well-known virus belongs to this family is meddle east respiratory syndrome (MERS-coV), which was first identified in Saudi Arabia in 2012. It rate of infection is lower than Sars, but it proved to be more deadly than Sars, more than 850 people died from Mers-corona virus. However, the virus causes potentially deadly disease in mammals and births, as well as the milder variance causing common cold. While the medical consensus at this moment revealed that the novel corona virus (nCoV-19), is more transmissible but appears less deadly than SARS, evidence suggest that the rate of human-to-human transmission of this virus appears to be higher than that of SARS. New strain of this virus [nCoV-19] has infected hundreds of thousands of people, mostly in Italy, Spain, United State of America and the epicenter of the virus China which prompted WHO on 25th of December to declare it (Pandemic) global health emergency.

Why Are Viral Infections Difficult To Cure and Control
Viruses are invisible (tiny organisms) that cannot be seen with the naked eyes, they can only be seen with the aid of an electron microscope. For many years, active proliferation of the virus has been the scourge and assault of human kind, causing disintegration in healthy cells and destruction of the entire human body systems thereby, causing suffering in life, well-being and eventually premature death. Infections by viruses are more difficult to control than infections caused by bacteria because the metabolic machinery of the virus is quite equivalent to that of normal healthy cells of the body. Viruses lack nucleus, cytoplasm and cell membrane; hence, they are

non-living or in-active outside the living cells. Viruses can infect animals, plants and even bacteria; it lies on the threshold of life, straddling the shadowy line between living and non-living. Virus can only produce while, in the living cells. Thus, this is the only living attribute it possessed, if not because of this unique attribute, it could have been classify as non-living particle. Moreover, viruses possessed unique protein materials and particles of DNA or RNA that can invade the living cells, and commandeer it metabolic activities inside living tissues and cells while, other viruses possessed RNA instead of DNA. At first the virus attaches itself to the surface of the cells in the living body and then injects its RNA or DNA into the cell. The infected cell eventually bursts releasing new viruses. The new released viruses then will start attacking the other healthy cells thereby, causing serious disease in the body.

Naming the Coronavirus Disease

Viruses are usually named based on their place of occurrences, discovery or based on the specific target cells, organ or systems they attack in the living body e.g. hepadnavaridae virus the causative agent of hepatitis infection was named after hepatic portal and H.I.V also is viral diseases that is attacking the defense mechanism of the body and in human only not animals or plants, hence, was named after human immune system (Human Immune Virus). Others were named after their places of occurrence e.g (river nile virus, Ebola virus and lassa virus) Lassa fever was named after one of the ancient city nomadic marghi ethnic group of far South-East of Borno State, North-Eastern, Nigeria after it was first discovered in the 1969 just nine year after Nigeria's independent (Buba, 2015). However, in the other hand viruses are named based on their genetic structure to facilitate the development of diagnostic tests, investigations vaccines and medicines, e.g. Novel coronavirus (NcoV-19). According to World Health Organization (WHO), the virologist and the wider scientific communities do this work, so viruses are named by the international Committee on Taxonomy of Viruses (ICTV).

Virology of Novel Coronavirus [nCoV-19]

Coronaviruses belongs to the unique family of Coronaviridae, which infect both animals and humans. In humans, coronaviruses are typically spread through air-borne droplets of an infected person's fluid. It's believed that MERS (Middle East Respiratory Syndrome), SARS (Severe Acute Respiratory Syndrome) and this new coronavirus that previously has not been identified in humans which emerged with high frequency in Wuhan, China in December 2019, were first transmitted from animal-to-human, before being spread between humans. The 2019 Sars-CoV-2 pandemic, which was caused by a particularly severe and deadly strain of the novel corona virus, killed at least 150,000 people and infected more than four million people worldwide.

Incubation Period

The typical incubation period from infection to appearance of symptoms is 12-14 days and most commonly 14-16 days (WHO, 2020). However, according to health expert on Covid-19 case management in Wuhan, China earlier indicated that the incubation period may be less than 14 days when symptoms start to show-up.

Mode of Transmission

It has been established that human contact and novel coronavirus are transmitted directly by human interaction. Transmission may occur by coughing, sneezing, touching, kissing and in some cases on the surface of an contaminated object such as (cell-phones, ATM machine buttons, door handles, computer buttons,

Symptoms and Complications

Signs and symptoms include high fever, head-ache due to high body temperature and fever, persistent cough and breathing difficulties. In more severe cases, infection can cause kidney failure and sometimes high blood pressure.

Treatment

According to Chinese, health officials that visited Italy says that many people infected only show mild symptoms, which can be effectively treated. There are available treatments for many of its symptoms. Even here in Nigeria despite, challenges face by dilapidated medical facilities, sub-standard drugs and limited qualify health personnel, there are cases of people who have been confirmed and tested positive and hospitalize/isolated. But later after following the standard treatment protocol they were re-tested and the result came out negative, and they were successfully discharged from the isolation center/hospital.

Vaccine

A vaccine effective in the prevention of novel coronavirus infection does not yet exist. However, there are a number of therapeutics currently in clinical trials in China, UK, Australia and United State of America. In China alone, more than 20 vaccines are in development for novel coronavirus, however, there are currently no licensed vaccines or specific therapeutics for nCoV-19. It is a race against time to develop a vaccine amid of pandemic. According to expert, each step in vaccine development usually takes months if not years, to develop one for new coronavirus in a record breaking of 12-18 months. While, all this will take time, stay home if you can.

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