ACTS OF COVID19

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ABSTRACT

COVID-19 appeared and spread fear among the population of the whole world from developedto developing countries. Although, at this stage, it is anonymous but it belongs to a family of viruses previously known about 80 years ago. Dealing with it requires an in-depth understanding of Coronaviruses and then put a clear vision and lines in the face of COVID-19. This study is based on a review of previous studies in the field of epidemiology and Coronaviruses and the analysis of some findings and conclusions of previous studies about COVID-19 epidemic. The multifaced effects of the virus on population of the world include economic and social loses and difficulties. The whole world is at war in the face of the epidemic, although in different forms and shapes. This confrontation requires clear steps in the behavioral changed directions of the society in addition to the future directions of science. The research recommends that there is a need, among others, for expanded use Intelligent Application in the future to face such epidemic. The modern technological measures such as AI and the Internet of Things have a future role inthe development of epidemiological study and control.

***Keywords**: COVID-19, Coronaviruses, Managing COVID-19 Epidemic, Intelligent Application, Covid-19 and Future Studies*

1. INTRODUCTION

The world continuously facing threats to human health that emerge – often without warning from the natural environment or human behavior, a group of viruses appeared in previous decades, which caused real risk to humanity. Now all countries remain chronically vulnerable to infectious diseases, known and unknown, Despite the progress made in confronting and combating microbes in the 1970s (Jesse Steinfeld, MD, US Surgeon General, 1969) However, for nearly four decades, we have faced episodes of the spread of viruses such as Ebola virus, in 1976, and the human immunodeficiency virus (HIV), in 1983 and Mad Cow. If humans eat diseased tissue from cattle, they may develop the human form of Mad Cow disease known as variant Creutzfeldt-Jakob disease (vCJD) and Bird flu, or avian flu, is an infectious type of influenza that spreads among birds. In rare cases, it can affect humans such as H5N1 (since 1997), H7N9 (since 2013), H5N6 (since 2014), H5N8 (since 2016). Also Swine flu a known as H1N1, H1N2, H2N1, H3N1, H3N2, and H2N3

infects pigs and can be transmitted to humans. These viruses formed dangerous situations in contemporary history, and the study of these viruses is extremely important, and these studies include studies in the nature of these viruses, the reasons for their spread, the behavior of these viruses, the availability of preventive methods and technologies in detecting them in addition to the medicinal drugs or treatments to fight them. These viruses formed different stages in their developmental stages. They are often limited in spreading under certain circumstances, in many cases transforming into a rapidly spreading epidemic and affecting humans.

Previous viruses may have a visible history of the stages of their emergence and development, but the real risks facing humanity are the emergence of viruses of unknown history. At present, started in Wuhan Chian in December 2019, most countries since the beginning of 2020 are facing the threat of spreading Coronavirus. This unknown virus, according to epidemiological records, represents a real challenge in the mechanism of dealing with it.

This research paper attempts to develop a systematic approach with a set of headlines to manage and counter COVID-19 Epidemic. The methodology of this study includes reviewing the previous studies, determining the causes, determining the composition, determining the environment, determining the incubator of viruses, determining the behavior of viruses, using this set of factors in developing concepts for dealing and managing the epidemic.

The study also aims to setting a vision on the use of smart applications in this field. To study and track this disease and try to conceptualize smart technologies that can be used in facing it in the future, this paper will use the general rules in designing a smart system, namely: study the phenomenon through reviewing the opinion of experts on aspects such composition, factors, and proposed mechanisms for manufacturers to tackle the epidemic. This includes a historical study of these viruses, a review of previous studies.

2. A REVIEW OF STUDIES ON CORONAVIRUS

Coronaviruses are a large family of viruses that cause illness ranging from the common cold to more severe disease causing ecen death (Saif et al., 2019). COVID-19 is a new strain that was discovered at the end of the year 2019, appeared in China in the city of Wuhan, and has not been previously identified in humans. The risk of this type of virus is that it spreads rapidly among people, for example, passengers in a flight having one or two Coronavirus infectd passengers, as it is anonymous. Weeks after the emergence of the disease in China, similar cases began to appear in Iran, Italy, Egypt, and many countries, within months the virus became more prevalent in many countries of the world. One of the important reasons of such rapid spread is possibly the global movement of people by air and other modes of transport from one city to another and one country to another.

2.1 Structure and Genome Expression

Some studies indicated the symptoms of these viruses in birds and in chickens in particular, and the symptoms were respiratory infections and egg degradation (Schalk, 1931; Beaudette, 1937). After studies were interrupted by World War II, studies referred to birds and coronaviruses such as: (Jungherr et al,1948; Jungherr et al, 1956; Winterfield, & Hitchner, 1962; Johnson et al., 1969). And Case studies havebeen carried out in the mice (Cheever et al., 1949; Dick et al., 1956), And Case studies have been carried out in the human (Hamre & Procknow, 1966). And Case studies have been carried out in the pig (Harada etal., 1967). And Case studies have been carried out in the rat (Parker et al., 1970). Through rigorous studies of the available literature over last few months we can find the follow aspects:

- There is a focus in research on the effect of Coronaviruses on birds due to the relationship of these cases to food security and subsequently being in direct contact with humans, while similar studies on rats have been neglected.

- Studies have shown the effect of Coronaviruses on the liver, brain and spleen in mice, which is a pathological behavior different from what appeared in chickens.

- The focus on the study of viruses in mice and attempt to reproduce patterns therapeutic in human cases is similar.

- HCV strains are primarily epidemic in the winter and early spring.

- The effect of isolated strains of viruses is based on the respiratory system in humans.

- Viral infections in pigs have had an effect on the digestive system, specifically the stomach and intestines and it spreads in very cold weather.

- The only Coronaviruses isolated from rats infect the respiratory system of rats in a fatal way and symptoms that are not shown.

- These previous studies were based on the principle of isolation to determine patterns and search for sera, and a single pattern appeared in rats, and this indicates that rats are the closest to being the source of any change in the nature of these viruses if they appear suddenly.

- Studies show a variety of Coronaviruses and differ in their patterns and their effects, it is clear that the risk can be in the types that are transmitted through the respiratory system and that can infect the respiratory system. The emergence or transmission of viruses that affect rats can be dangerous in the event of transmission to humans.

2.2 Properties of Coronaviruses

Through studies, the dimensions of coronavirus infection in humans have been determined as follows:

1. **Dimensions:**

- Overall diameter 80-120 nm and length of projection 20 nm (Almeida & Tyrrell, 1967).
- Overall diameter 120-200 nm and length of projection 20 nm (McIntosh et al., 1967).
- Projection are 20 nm long and about 7nm wide at the tip (Myint, 1994).

2.3 Physical and Chemical Characteristics:

- Nature of the nucleic acid: In all instances the growth of Coronaviruses has been shown to be insensitive to the action of inhibitors of DNA metabolism (Pensaert et al., 1970).
- Sensitivity to Lipid Solvents: Both ether and chloroform destroy or markedly reduce the infectivity of Coronaviruses (Girard et al., 1964, Hierholzer et al., 1972).
- Sensitivity to Physical Agents : Studies show that Coronaviruses are destroyed at a temperature of 56 degree centigrade(?) spontaneous over a period not exceeding 10 minutes, and destroyed within days at a temperature of 37 ° C, in contrast it needs months at temperatures of 4 ° C (Hirai &Shimakura; 1971, Bucknall et al., 1971, Sawicki & Sawicki, 1995).
- Chemical Composition of the Virion: Human Coronavirus OC43 loses its infectivity, its complement-fixing activity, and much of its hemagglutinating ability when treated with 1 % trypsin for 2 hours (Kaye et aI., 1970).

2.4. Development

There is little doubt that all known Coronavirus species develop exclusively in the cytoplasm of infected cells (Mohanty et al., 1971).

2.5. Immunity and Coronavirus

Immunological studies were conducted on Coronavirus, and trying to extract it from previously infected cells. The most important studies indicated that viruses can be treated with ether

(Tevethia &Cunningham, 1968). The coronaviruses have been classified as a separate virus genus on the basis ofseveral fundamental characteristics (Tyrrell et al., 1968; McIntosh, 1974),

2.6 Structure and Genome Expression

According of previous studies Coronaviruses possess three major structural proteins: a nucleocapsid protein (N), a small integral membrane glycoprotein (NS), and a large spike glycoprotein (NL) (Spaan et al, 1988, Salanueva et al, 1999). While these three proteins are common elements among all coronaviruses, the difference between Coronaviruses is through a subset of other proteins. This subset represents the difference between the viruses in terms of structure and effect. And through detailed studiessuch as: The number of amino acids in the protein N has been determined, as it was used to determine the Properties of virion proteins.

Some studies indicated that the synthesis of medium-sized proteins is almost identical between the viruses that infect humans and those that infect cows (Cavanagh & Davis, 1987). This convergence is not sufficient for the types of viruses to be similar to the synthesis.

According to some studies (Schmidt et al., 1987; Luytjes et al., 1987, Salanueva et al, 1999) there are large differences in the number of amino acids of NS between different coronaviruses.

Some studies have shown that the Coronaviruses possess a glycopolypeptide in addition to NS and NM (Siddell et al., 1983; Makino et al., 1983, Salanueva et al, 1999).

2.7 Genome organization

Coronaviruses encode their genetic information using a Ribonucleic acid (RNA) genome (Siddell et al., 1983; Horzinek et al., 1987). RNA is a polymeric molecule essential in various biological roles in coding, decoding, regulation, and expression of genes. The genomic RNA of Coronaviruses is the largest among RNA viruses, approximately 27 to 30 kb. RNA is found in nature as a single-strand folded onto itself, rather than a paired double-strand. Cellular organisms use messenger RNA (mRNA). Genomeorganization of Coronaviruses indicates that new viruses may arise when members of different familiesoccupying the same ecological niche exchange genetic information. This may happen naturally or through human intervention, and this poses a risk if the new viruses are deadly and rapidly. Studies have indicated that Coronaviruses are rich in serine. Its main role is to encapsidate the RNA genome (Schmidt & Kenny, 1982; Raabe & Siddell, 1989, Arpin & Talbot, 1990)

2.8 Morphology of the Projections

The first human Coronaviruses was isolated by different techniques in the United States and Britain at approximately the same time in 1962 (Kendall et al., 1962). Studies have shown that it is possible to distinguish between human Coronaviruses and other viruses on the basis of the morphology of the projections, where the human viruses had thin rod-shaped projections with a spherical or teardrop like dilatation at the distal end. These thin projections were not seen on the porcine or bo~dne Coronaviruses (Caul & Egglestone, 1977, Davies& Macnaughton, 1979)

2.9 Epidemiological History

Coronaviruses that infect domestic and laboratory animals produce illnesses some of which are sometimes fatal. In contrast, there is no documented report yet on record of human Coronaviruses being involved in a lethal infection or the spread of the epidemic before 2019 (Kendall er al., 1962, Purcell & Clarke, 1972; Monto, 1974,……)

2.10 Diagnosis of Infection

Usually, Coronaviruses produce respiratory illnesses indistinguishable from those caused by many other types of viruses (Monto, 1974). Therefore, there is a need for laboratory tests to judge and give a report on the cause whether it is a Coronavirus or not. The presence of viruses is detected as a cause of infection was usually by electron microscopy or sometimes by fluorescent antibody testing of impression smears. Evidence is steadily mounting that the Coronaviruses are of major importance in common respiratory infection of all age groups, especially those occurring in midwinter and early spring.

3. HUMAN CORONAVAIRUS

In the 1950s Enders showed that poliomyelitis virus could be propagated in human kidney cells. This technique was applied to the isolation of common cold viruses. This technique has been successful in isolating viruses and 28 ECHO was isolated in monkey kidney cells (Halonen et al., 1958; Ketler et al., 1962). Through the development of organ culture sciences, this technique was used in fetal tracheal to cultivate a virus B814 agent (Tyrrell & Bynoe, 1965) from the nasal washing and swab taken from aschoolboy with a cold in 1960, strain B814 was the first human coronavirus isolated.

Research continues to isolate Human Coronavirus, and the virus 229E (HCoV-229E) is isolated. It is one of the viruses that infects humans and bats (Hamre & Procknow, 1966; Lim et al., 2016). In 1966 strain OC43 was isolated which is a member of the species Betacoronavirus that infects humans and cattle, and Strain 692 was isolated by Kapikian's group in 1966 (McIntosh et al., 1966,

Arbour et al., 1999; Bonavia etal., 1999). Previous studies have identified Coronavirus-like particles (CVLPs), which causes intestinal diseases in the human digestive system (Pensaert et al., 1978, Myint, 1995) and pig Turgeon et al., 1980). Studies have shown a correlation between human Coronaviruses and some antigenic features with the Coronaviruses that infect animals. These signs were the starting point for antibody production to the OCV43 through the use of other viruses (Bradburne, 1970), likewise, studies have proven the existence of antiviral relationships between human coronaviruses and those that infect cows and mice (Gerdes et al., 1981). This evidence opened prospects for antigen production through the viruses themselves in the future.

Studies indicate that the main human Coronavirus is ineffective in temperature 37 C^{o} within thestrain is also sensitive to lipid solvents and detergents, such as Chloroform (Hierholzer, 1976, Siddell &Myint, 1996). Another study investigated the property of HCV-OC43, the ability of this virus is tohaemagglutinate human group O (Kaye & Dowdle, 1969). Furthermore, results from another study(Patterson & Macnaughton, 1981) have shown that there is a genetic factor that is important in determining the susceptibility of cells to HCV-229E, specifically, if the qll-qter region of human chromosome 15 is missing in hybrid cells, it will not replicate. Figure 1 shows that region. This relationship confirms the genetic role in the process of infection or future production of antigens

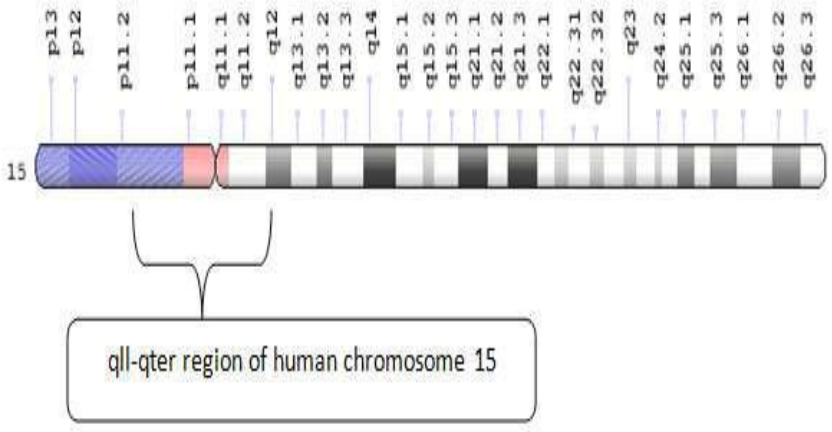

Figure 1: Chromosome 15

Another study indicates that the transfer is through aerial spray during breathing, coughing or sneezing. It is also possible to transfer through contact with surfaces (Myint, 1994).

Other studies have been performed on the ability Coronaviruses 229E and OC43 to infection of PrimaryCultures of Human Neural Cells (Bonavia et al., 1997) that showed that OC43 have the

capacity to infectsome cells of the central nervous system, although infection of adult cells appears abortive (Edwards et al., 2000).

In the case of infection with the virus, the following symptoms appear:

- Symptoms may not appear in the 4-day incubation period.
- After the incubation period, symptoms of fatigue appear.
- Headache.
- Runny nose.
- Sneezing.
- Coughing.
- Fever
- Symptoms of the organ system in advanced stages.

- The effect is stronger in case of diseases of the respiratory system such as Asthmatic childrenand in the elderly.

By electron microscope and other methods based on nucleic acid hybridisation have been described. The first of these methods was based on RNA:RNA hybridisation using radioisotopically labelled cloned probes. This method was, at least, as sensitive as cell culture and enabled diagnosis within 24-48 h. This technique has, however, been superseded by the development of gene amplification-based methods. 'Nested RT-PCR methods using primers specific for the nucleocapsid genes of HCV-229E and OC43 are 100-fold more sensitive than the RNA probe method when applied to infected nasal aspirates; further internal probing is also unnecessary (Myint, 1994).

On April 12, 2003, scientists working at the Michael Smith Genome Sciences Centre in Vancouver finished mapping the genetic sequence of a Coronavirus believed to be linked to SARS (Marra et al., 2003). Phylogenetic analysis of these viruses indicated a high probability that SARS Coronavirus originated in bats and spread to humans either directly or through animals held in Chinese markets (Normile, 2005; Rihtarič et al., 2010). Severe acute respiratory syndrome SARS Coronavirus emerged in early 2003 to cause a very severe acute respiratory syndrome, which eventually resulted in a 10% case-fatality rate. Owing to excellent public health measures that isolated focused cases and their contacts, and the use of supportive therapies, the epidemic was suppressed to the point that further cases have not appeared since 2005. However, despite intensive research since then (over 3500 publications), it remains an untreatable disease. The potential for re-emergence of the SARS Coronavirus or a similar virus with unknown but potentially serious consequences remains high (Barnard & Kumaki, 2011)

In 2003, a child with respiratory problems became sick. The known Coronavirus tests showed a negative result, so the causative type was considered a new type of Coronavirus HCoV-

NL63, and it is present in a significant number of respiratory tract illnesses of unknown etiology (Chiu et al., 2005, Bastien et al., 2005). The clinical study of a group of the case also showed that the symptoms of infection with this virus are similar to other Coronaviruses, where the symptoms include fever, and sore throat (Sloots et al., 2006). In the same context, studies indicated to human Coronavirus (HCoV) HKU1, and it has caused injuries in various regions of the world (Sloots et al., 2006). Children under the age of 2 years were most at risk of infection by these viruses which contribute significantly to the microbial burden among patients with respiratory tract disease during the colder months (Vabret et al, 2006, and it has appeared in the United States of America (Esper et al., 2006) and Italy (Gerna et al., 2007). And a study in 2005 indicated that the virus was from China and that the first casualty was elderly (Woo et al., 2005). Regarding the incubating origin of the (HCoV) HKU1, the study (Woo et al., 2005) indicated that it may be animal, but during previous years it became a transit from animals to humans, and it caused infection in different ages, according to studies conducted in China, Italy, America, Jordan and Thailand, and this type of virus is active in March and April of a year (Woo et al., 2009). Studies show that the heavily glycosylated proteins are crucial for Coronaviruses to establish and maintain an infection cycle, by interacting with specific cellular entry molecules to initiate a fusion between viral and cellular membranes (Wevers & Van, 2009, Gaunt et al., 2010).

Some studies indicate that the (HCoV) HKU1 may be the cause of emerging infectious children diseases in Brazil in 1995 (Góes et al., 2011). These signs reinforce the idea that these viruses have existed for a long time, and that their recent discovery does not indicate that they have evolved, but it can be said that the conditions of their appearance were not appropriate.

In the post-2012 period, studies indicated that the source of Middle East respiratory syndrome is unknown Coronaviruses (Memish et al., 2013; Assiri et al., 2013, Haagmans et al., 2014), their source may be camels and bats, and these are indications that animals are a source of viruses that infect the respiratory system. It is noted that this infection was limited and did not rise to the level of epidemic. In the past five years there have been fears of spread SARS or Middle East respiratory syndrome as a pandemic, scientists had concerns about a pandemic caused by Coronaviruses, but they were not supported by scientific evidence. Fears were directed towards the emergence of these viruses from pigs, birds, bats, camels or cows (Yuso, 2017; Corman et al., 2018; Fan et al., 2019), but these fears were facing a silent and unpredictable enemy.

Silent anticipation of the emergence of a pandemic due to Coronaviruses, the world encountered through a COVID-19 (Wu et al., 2019; Kannan et al., 2020), The World Health Organization (WHO) has indicated that the world is facing an unknown virus, although it is from the family of Coronaviruses, but it is not one of the known viruses, and this poses a danger.

From the previous studies we find that there are no mentions of a specific geographical distribution for Coronavirus activity. Therefore, Coronaviruses can be found anywhere in the world.

Also from the previous studies we find that there is no evidence of a sex differential in infections with the Coronaviruses; and that

There is no evidence of a age differential in infections with the coronaviruses.

It is important to determine how great is the morphological variation exhibited by coronavirus species and to establish whether such differences can be related to their biochemical structures, and categorizing them based on the epidemiological risk.

4. COVID-19 STORY

Laboratories in China, the United States, and Germany were able to identify the virus as one of the Coronaviruses through a rapid comparison with the physical, chemical and genetic properties of Coronavirus. It was found that it includes the basic composition of most of the Coronaviruses, which Is previously discussed, and through the comparison, scientists found that it is a new type different from previous viruses, this type may be from animals such as rats, bats, pigs, or some other source, and may be from humans, according to initial reports.

4.1 Confrontation of COVID-19

Since its source is unknown, speculation began about its source., Allegations have developed between countries to suspect that its source may have been a biological development made on the genetic makeup of one of the previous viruses, causing the new virus to emerge. While other allegations suggested that it is the result of excessive food behavior in dealing with animals, such as bats, rats, birds or pigs or others.

All these allegations were not supported by clear evidence and scientific facts. Indeed, one of these allegations can be true, but it does not mean forgetting a clear fact:

The world faces only one threat, as these viruses will not differentiate their source from theirs.

Within weeks, the spread of the virus has evolved in most countries of the world, and it has become a health threat facing the entire world, and since there are no antibodies to this virus, previous studies have become a reference as to how to deal with it, and dealing with it has taken a crack in behavioral and scientific procedures.

4.2 Behavioral measures in the face of COVID-19

The berhavioral measure in the face of COVID-19 includes, with some variation among countries conducting isolation measures, as history is full of similar events in the face of the

epidemic, as initial signs supported the idea of isolation as an effective mean in dealing with epidemics, and there are references e.g. in Islamic legislation (applied during the time of Khalifa Oma) and in history that isolation is a mean that can limit the spread of the epidemic.

- **Isolation requires procedures that include:**

1. Acknowledgment of the epidemic.

2. The ability to manage the isolation process and its graduation.

Through isolation, China has demonstrated the ability to manage the epidemic at its early stages of spread, but some countries that have hesitated to implement isolation measures have faced severe the spread of the epidemic.

Now many countries continued to take strict measures to do isolation, for example, Jordan, Malaysia, France, Iraq, Saudi Arabia, the United States of America, Germany, and day after day, countries that take isolation measures as a mean to confront the epidemic are increasing. Isolation is more effective whenever it is comprehensive within the minimum exceptions, and the situation has arrived in Jordan to announce a curfew. Isolation requires a capacity to control society and an ability to cope with the consequences of this total closure. The world is expected to be able to control the intensity of proliferation through isolation, but this does not mean that it is the best option.

- **Isolation is based on scientific facts:**

The first: - We need to understand that the shelf life of the virus's ability to remain active in the externalenvironment or within infections. And take into account that commitment to implement isolation within the higher expected value through previous studies of Coronaviruses, where studies indicated periods of time that may reach for 14 days in most cases.

The second: - The isolation takes into account the expected period of peak viral spread, and throughprevious studies, the most serious period of time extends from April to the beginning of May.

The third: - Take into account of the fact that the isolation of persons most vulnerable to infection with thevirus, who are the elderly, children and those with previous respiratory diseases.

The fourth: - Take into account the difference in temperature, as the insulation period may be longer incold areas, where the temperature drops below 25 degrees Celsius.

The fifth: - Procedures of isolation range to stop the spread of the virus to zero boundaries, and theisolation period after this case extends to a staggering period of up to 14 new days to ensure complete control.

- **Medical measures in the face COVID-19**

The first: - The scientific approach is a guarantee for controlling the virus. This measure requires researchin serology that can be antibodies to this virus.

The second: - In addition to research in the field of antibiotics, there is a need for research in the field ofdiagnosing this virus.

The third: - The need to determine an accurate description of the symptoms caused by the virus.

The fourth: - Determine the unique symptoms that differ from others to ensure the accuracy of theapparent diagnosis.

The fifth: - The development of laboratory testing mechanisms, in terms of development in themanufacture of electronic microscopes or materials that are used to detect viruses through samples.

- **Global fears of a pandemic COVID-19**

Infection rate, global health reports and scientists indicate that the COVID-19 can cause infections of up to 40% of the world's population, although there is no evidence for this percentage, but it means that there is a probability of more than 2.5 billion people of the world are infected with the COVID-19. Reports also indicated that the death rate may reach 2% of all injuries/infections, and this means that the number of deaths may reach up to about 50 million people. These numbers mean numbers close to the number killed in World War II, which reinforces the description of the epidemic as ‘world war’.

- **Implications for the Corona Epidemic COVID-19**

The spread of Corona virus has several consequences, including:

- International isolation causes an almost complete halt to the global trade and people movement.
- Domestic isolation could seriously harm all countries developed, emerging and low income economies.

- Local isolation could cause chaos if the epidemic spreads are out of control.
- The spread of death and fear may cause chaos if the epidemic is not brought under control.
- The emergence of economic crises in different companies and sectors, such as aviation, tourism, various industries such garments.
- Isolation measures may deepen unemployment in all countries including developing countries.
- The epidemic may change the distribution map of population density in many countries.
- The epidemic may deepen poverty and hunger in the world.

The study suggests future visionary needs in developing medical tools:

- The use of modern technology in the development of rapid injury detection devices.
- Using the Internet of Things (IoT) to monitor the spread of the disease that facilitate immediate reportings.
- The use of artificial intelligence (AI) (elaborated further in the next section) in the process of predicting the future behavior of any virus from Coronaviruses through genetic analysis and analysis of interactions between viruses with each other or with the surrounding environment.
- Application of fuzzy models in studying the behavior of viruses to anticipate what might happen.
- Increase global support for the study of epidemics and viruses, and expand the deployment of laboratories around the world.

4.3 Artificial intelligence and COVID-19

The main concepts in the process of linking COVID-19 with modern technology include:

- AI : can be defined in simple words is the ability of machines to think and understand instead of doing things automatically or manually, and has gone through the stages of growth, development, and expansion of applications from the 1940s until the present era (Huang, & Rust, Jarrahi, 2018; Russell, & Norvig, 2016).

- IoT: can be defined in simple words is a network of Internet connected objects able to collect and exchange data, that aim to integrate things and the Internet include communication, monitoring, control and manufacturing applications, sensors, and other everyday objects (Patel & Patel, 2016; Ben-Daya, 2019).

- Field of application: It is the environment in which artificial intelligence or the Internet of things will be used, and this environment includes a set of basic components, effects, regulations, and laws that are included in the field of application. With regard to the current research, the COVID-19, and within a more accurate detail is: identification of infection, determination of spreading mechanisms, determination of spreading behavior, spreading control, development of synthetic relationships for the manufacture of antigens.

AI can be graded in the following steps:

- Developing a detailed and classification map of Coronavirus by experts in the field of biology and epidemiology.

- Develop a detailed and classification map of symptoms and interactions between symptoms.

- Establish an accurate classification of viruses in terms of internal structure and identification of external influences.

- Establish a classification of the correlations between coronaviruses that infect humans and those that affect animals and birds.

- Build models and algorithms that are able to read and deal with all of these classifications and give options and alternatives available.

- Designing and developing smart devices that rely on the Internet of things and smart applications in managing epidemics, such as devices for detection in airports, airplanes, or individual devices that can be used by non-specialists with ease.

5. CONCLUSION

Coronaviruses are not new viruses. Rather, they are viruses that have existed and have been studied by humans for nearly 80 years. The scientific base available for the study of such viruses includes a quick introduction, through systematic new studies on the current or new virus. Recent studies must take into account what is indicated or found by previous studies in terms of symptoms, composition and behavior. Our study finds that it is possible to face the virus through isolation, but this does not mean that there are no losses. The losses that the virus may cause include economic

and social. The modern technological measures such as AI and the Internet of things have a future role in the development of epidemiological study and control. With the combined efforts and application of a systematic approach, Covid-19 will remain much smaller than the greatness of the universe and the future ability of human beings to deal with such an epidemic. While studies on challenges and impact can be conducted within aseparate logic, where there will be a clear difference between countries and societies in this scope and open issue, future studies on:

The impact of the Covid 19 pandemic on the global economy.

The impact of the Covid 19 pandemic on global trade.

The impact of the Covid 19 pandemic on maritime and land navigation.

The impact of the Covid 19 pandemic on the educational sector in the world and countries.

The impact of the Covid 19 pandemic on global sport and local and international competitions.

The impact of the Covid 19 pandemic on the health sector, health care at all levels and institutions.
The impact of the Covid 19 pandemic on large, medium and small companies.

Covid 19 impacted labor in the private sectors.

The impact of Covid 19 on the agricultural sector.

The impact of Covid 19 on the medical industry.

Research in the areas of Covid 19 and smart applications.
Research in the areas of artificial intelligence versus Covid 19

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