A review on Covid-19 (Corona Virus Disease), Transmission and Pathological effects  
Prof . Dr . Khairy Abdullah Dawood  
Al- Mustaqlbe University College / Babylon , Iraq .  
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Abstract  
In response to public health, it is necessary to write a review on COVID-19 disease as emerging zoonotic disease. Transmission of the new pathogen SARS-CoV-2 virus have several ways , spill-over or Evolutionary jump help virus to spread from one host to another with a rapid adaptation ( Epidemiological cycling ) .  
Covid-19 can transmitted from animals to humans (Zoonotic disease) or from humans to animals (Zooanthroponosis) or from humans to humans (Emerging Infectious disease) or from animals to animals as infectious disease .  
On other hand some several wild animals considered reservoir host such as bats , snakes , frogs , hedge-hog , wild rats , marmots and rabbits [ 16 , 17 ] .  
Since December 2019 when Covid-19 emerged in human from seafood market at Wuhan , Huanan city south China , rapidly transmitted all over the world as viral outbreak .

Introduction :  
Zoonosis is an infection that is naturally transmitted from vertebrates animals to human , therefore animal population are maintained continuous source of human infection [ 25 , 26 ] .  
Fisher [ 6 ] mentioned that Viral infection can be acquired by humans through direct contact with animals or indirect exposure by vector-borne or by food-borne.  
Spill-over events is the term used to describe when a virus has overcome naturally occurring barriers necessary to spill over from one species to another leading to a new infection. Spill-over is a chance occurring , normal cycling infection , and frequently seen in human with immunodeficiency . In recent years HIV Ebola , Influenza , yellow fever , dengue , measles were studied as viral out break [ 27 ] .  
Zoonotic viral infection ( Covid-19 , AID, Influenza and Rabies) can occur due to wild animals ( free or domesticated ) as a emerging diseases from animals to humans .  
Zoonotic transmission of viral diseases , 70% of these diseases were originated from wild animals while 30% were originated from domesticated wild animals [ 11 , 12 , 18 ] .  
[ 25 , 26 ] wrote a list of epidemic diseases such as Covid-19 , Ebola , Lassa fever , SARS-cov-2 , Rift Valley fever .  
[ 29 ] considered Covid-19 as a zoonotic , pandemic disease , similar to the SARS – CoV – 1 that emerged during 2002 .  
[ 26 ] official data reported 4,628,903 confirmed cases and 312,009 deaths on 18 may 2020 due to COVID-19 infection .  
Patients suffered from acute respiratory sings , symptoms were recorded , Autopsies were done for dead human patients in USA .
in National Center for Emerging and Zoonotic Infectious Diseases. These cases were consulted (positive to PCR test for CoV-2). Swab specimens collected before and after death. Routine hematoxyline-eosin stains were performed for histopathologic evaluation. Electron microscopy diagnosis was done for the same specimens (lung and upper respiratory tract) fixed in formalin. Rabbits used as experimental animals preparing polyclonal antibody against SARS-CoV-2.

In this review most characterization of Covid-19 as zoonotic disease are summarized from several researches and reports.

Results:
COVID-19:
Pandemic outbreak of Covid-19 caused by SARS-CoV-2 is a natural and has an animal origin through spillover infection.
The first infection of human with COVID-19 were detected and confirmed in 41 cases in Wuhan city, Hubei Province in China, where a live and slaughtered animals are purchased in this market, like hundreds markets in that region [28, 23, 24, 5].

Transmission:
Causes of human infection, characterized by mild pathological changes in upper respiratory tract but can infect the lower respiratory tract and cause a sever and fatal respiratory syndrome [1, 32].
COVID-19 spreads from person to person mainly through respiratory route by coughing, sneezing, talking, breathing. Infected droplets or aerosols get into mouth, nose and eyes (airborne). Kissing, direct contact can easily transmit the virus leading to COVID-19 disease [1].
COVID-19 transmit through food (Foodborne), drinking water, breast milk, contamination with infected feces and urine, Also can transmitted from mother to her baby during pregnancy. Vectors can play important role in cause of transmission virus among animals and from animals to human.
One of the most important of cause of infection is the food which is depend on animals (domestic and wild) such as dog, cats, poultry, camels, bats, minks, rats, wolves, foxes, bamboo fishes. Hundreds markets are selling live and slaughtered animals in Wuhan, As well as Food production in restaurants and home deliveries sometimes contaminated [9, 15].

Experiments were done on animals who had exposed to infected human (positive owners for COVID-19), these animals include domesticated cats, dogs, ferrets, managed mink, lions and tigers (zooanthroponosis).
Studies have shown that cats, ferrets and primates are susceptible to infection with SARS-CoV-2 and can transmit the virus. Zoo animals including a tiger and lion were reported to have been infected by zoo career. Zooanthroponosis infections (human to animals) in Netherland, Spain and Denmark also reported [16, 21, 20]. [14, 15]. Worked on human-animal interactions and bat coronavirus spillover potential among rural residents in southern China and reported meat factories were the source of infection. Serological surveillance of the workers and farmers proved that.
[9] mentioned that risk of Coronavirus transmission is increase along with wildlife consumption by human in South East Asia, fur and network trade marketing, as well as zoo-anthroponosis (reverse zoonosis) occur.

Other researchers speculated the proximal origin of SARS-CoV-2 could have resulted from natural selection in animal species before its evolutionary jump into humans or after a zoonotic transfer. the virus was naturally selected within the human population. [1, 2]
A study was done by [12] Concluded increase of viral abundance with growing domesticated animals species population in proximity to human, changes in livestock food system in response to increase demand for animal products.
Swab samples collected from surfaces and cages in the market tested were positive for SARS-CoV-2, majority of positive samples
were taken from animals , wild animals reared in captivity farm.

**Pathophysiology:**
Samples of (COVID-19) were prepared from people suffered sever acute respiratory syndrome (Histopathological lesions, predominant in respiratory tissues). coronavirus 2 (SARS-CoV-2), upper respiratory tract (nose, throat and sinuses) are affected as well as the lower respiratory tract (trachea, bronchi, bronchioles and alveoli) also affected, therefore lung mostly affected by COVID-19 infection, finally respiratory failure [3]. [3, 32] isolated a novel coronavirus from patients with pneumonia. SARS-CoV-2 may also affect central nervous system (virus detected in cerebrospinal fluid of autopsies). [12].

COVID-19 can cause acute myocardial injury and damage to the cardiovascular system. An acute cardiac injury was found in 12% of infected people admitted to the hospital in Wuhan, China and with high rates of cardiovascular symptoms [30, 31].

Main pathological findings at autopsy are: Lung consolidation and pulmonary oedema. Bronchopneumonia, Serous exudation with fibrin exudation (Sero fibrinous exudate) with sever acute respiratory Syndrome coronavirus 2 infection, multinucleated giant cells are present in lung tissue, alveolar spaces contain extracellular virions (electron microscope). Macrophagic pericarditis, Intravenous Coagulation (Thrombosis) in heart and brain [19].

[19] published a research work on effects COVID-19 on liver cause injury, damage to the liver tissue and at the end hepatic failure.

**Signs and Symptoms:**
Coronavirus have variable signs and symptoms, fever or chills (sometimes low and others high fever), loss of taste, loss of smell, cough, shortness of breath or difficulty, Fatigue, difficulty in walking. Mortality rates for COVID-19 vary but higher among the elderly persons that suffering from immunosuppression [19], people suffering diabetes, hypertension, heart disease [1, 30, 31].

**Complications:**
[22] worked on hematological findings and Complications, secondary infection with opportunistic bacteria. Most complications are including pneumonia, kidney failure, thrombosis, heart attack, enteritis, multi-organs failure.

**Management and Treatment:**
COVID-19 patients must be wear simple face mask and need supportive care include fluid therapy, Oxygen support. Patients must be under health care with special diet to improve immunity. Cell mediated immunity and antibody production. Immunity of this disease long—lasting in people who recover from the disease. [7, 8].

At the beginning, hydroxychloroquine or chloroquine used as treatment with vasodilators, corticosteroids, immune therapy, lipoic acid, bevacizumab, interferon beta. Food and Drug Administration (FDA) in united states gave the drug an emergency use authorization [10].

**Conclusions:**
2 – Direct or indirect main sources of outbreak are animals and their products.
3 – Raw or Under cooked meat is a source of transmission of virus from animals(wild and domestic) to human.
4 – Wild life is a reservoir host for coronavirus and many causative agents for several diseases.
5 – Social distancing and wearing Surgical mask to control and prevent droplets transmission.
6 – Maintain good ventilation and good air circulation.
8 - Increase risk of death with Elderly people suffered chronic diseases, diabetes, hypertension, heart diseases and immunosuppression.

**References:**