The Transmission Potential of Monkey Pox Virus In Human Populations: A Fable Of Two Clades

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Demonstration of monkey pox virus was done by using chain reaction of polymerase in no of two grassland dogs, in this case some pathological conditions were developed and those were like inflammation of the conjunctiva i.e conjunctivitis, inflammation of the lungs, and ulcer in the tongue. From the result of some immunological tests it has been proved that in the mucus membrane of the eye and tongue contains more orthopoxviruses where as in the adjacent macrophages, connective tissue and fibroblasts its less in no. It has also seen that tongue and lungs contains active viral replication of the virus. This explains how monkey virus transmits to human rodents and to human through both respiratory and direct mucocutaneous.
INTRODUCTION:
Monkey virus is considered as one of the least deadly viruses, but is also considered as a veteran to become pathogen for human\(^1\)-\(^2\). Now a day’s vaccination against small pox is not carried out due to the genetic makeup the virus and also changes according to the host behavior. Now we are going to focus on vital proteins which is estimated to combine the immune response to the host and compare of the genome of the monkey virus variola, the orthopoxvirus which depicted the vaccine of small pox. Many differences have found in immune-modulating genes like the code for virulence, effect of cytokinase. The virus can be found in different regions of Africa are different in characters such as virulence which may be due to difference in their genetic makeup\(^3\). Monkey virus comes under the family of poxviridae and genus orthopoxvirus. With the help of some active strategy smallpox has been eradicated successfully. Vaccinia virus is slightly related to the virus used in eradication of small pox. WHO declared the eradication of smallpox around the world in 1977 but it is also believed that monkey virus can transform to poxvirus to humankind\(^4\).

CLINICAL FEATURES OF MONKEYPOX INFECTION
Rope squirrels and Gambian giant rats are suspected as the reservoir for monkeypox (figure:1). It is believed that a person may get the infection with contact to the infected animals, but it can also occur through respiratory droplets and these types of cases have been identified in US\(^5\). The period of incubation is about 10-14 days and the predome period is about 2 days. In predome period patient develops malaise, fever, chill etc. Enlarged lymphnode represents a distinguish characteristics of human monkeypox from infection of human smallpox in 90% of all human monkeypox infection\(^6\)-\(^7\).

![Figure: 1 Monkey Pox Transmission Cycle]
MOLECULAR BIOLOGY:
To find out the differences of these virus several laboratory tests can be performed. The virus can be distinguished with the help of molecular techniques(Figure:2). By targeting 2 genes, with the help of PCR techniques the monkeypox can be identified.8

**Figure: 2 Structure of MonkeyPox Virus**

Depending on penetration of the stain, the surface of “M”, (or “mulberry”) virions are covered with short, whorled filaments, while “C”, (or “capsular”) form virions penetrated by stain present as a sharply defined, dense core surrounded by several laminated zones of differing densities.

DISCUSSION:
from serological study done in Africa, it was found out that monkeypox is an emerging problem which is more infectious than earlier prediction. Introducing of the monkey pox’s virulent strain to individuals/one lacking defense against orthopoxviruses can emerge/create a situation of epidemic outburst.9-10

Genetic composition:
1.Truncated orthologs of COP-E3L & COP-K3L a protein that function in IFN resistance is the chemical composition of central African monkeypox strain.11-13
2.The composition of variola & vaccine virus is similar to those of African monkeypox but are of full length genetic protein.14

Our immune or defense system reaction differs to this protein. This area will only be uncovered by doing further research & possible investigations on the genetic composition which will enlighten the area & will useful in making safer vaccines & treatment against the disease condition.15-17

Transmission:
1. Direct possible transmission which can be associated with hunting, skinning, preparing and ingestion of infected rodents and monkeys.
2. Transmission from infected pet animals to humans.18-20

Preventions:
1. On June 11, the CDC & the food and drug administration jointly banned sales of distribution, transport & import of rodents & prairie.
2. State and federal bans have curtailed further sale and transport of prairie dogs.21-23

CONCLUSIONS:
As there is continuous change in internal and external environment, making human being more prone to new disease because of increased likelihood of immunosuppressed status, there is always a risk of outbreaks of new disease.
Although smallpox has been eradicated since 1980 but there is always a potential of danger to be filled by this monkeypox which has been continuously occurring in Africa & some recent cases in US. Transmission of these virus from person to person may make them more stronger virus effecting human health worsen. Based on the genome comparison and further researches on the genetic material may rule out come light in this topic & help human health by possible future vaccines & treatment against the infection.

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