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International Journal of Advance Research in Medical Science 2025; 1(4):1-5

(Review Article)

Dinga Dinga Virus: A Brief Review

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Received: 01/09/2025/ Revised: 20/11/2025 / Accepted: 01-12-2025

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Conflict of interest: Nil

Abstract

The Dinga virus is a novel, mosquito-borne virus within the Flavivirus genus. It was first identified in Africa and is mainly transmitted by the bites of infected mosquitoes to human beings. Common symptoms of the virus include a mild febrile illness characterized by fever, joint pain, rash, and muscle aches. However, Dinga virus often presents as self-limiting; in some cases, though, it may evolve to cause more severe illness. This abstract outlines the virus's characteristics, transmission dynamics, clinical manifestations, and its potential public health impact, emphasizing the need for continued surveillance and research to better understand and manage its spread.

Keywords: Dinga Dinga virus, fear virus, mosquito transmitted diseases, pathogenic disease, arbovirus, tropical diseases.

INTRODUCTION

Dinga Dinga virus (DDV) is a novel virus with some properties that could be detrimental for human health and hasn't been thoroughly researched so far. The virus is a part of the larger family group called the Flavivirus which includes the Dengue virus, Zika virus and West Nile Virus. Although this virus is still not entirely known, there is general agreement as to where it would lie among other mosquito-borne viruses with ddv in terms of transmission risk The Dinga Dinga virus (DDV) is a recently recognized member of the Flavivirus family, which includes devastating viral pathogens such as Dengue, Zika and West Nile. Little known by medical science, the simple advent of the DDV provoked interest through its potential influence inter alia on global health, especially for tropical and subtropical dwellers. Like other flaviviruses, DDV is thought to be mosquito-borne mainly, but its transmission dynamics, clinical manifestations and epidemiology still are not fully understood. The emergence of this virus underlines the need for all-round surveillance and active research on emerging diseases that could create significant health issues for vulnerable groups.

This review provides an overview of the potential public health impact of Dinga Dinga virus, together with its recent discovery, modes of transmission, clinical manifestations of disease, diagnostics and the current understanding.

Dinga Dinga Virus Classification

under the following taxonomic classification Dinga Dinga virus (DDV) lies: Family: Flaviviridae

Genus: Flavivirus

Species: Dinga Dinga Virus

Flaviviridae, the family of viruses to Flavivirus, includes some serious human pathogens like the Dengue virus, the Zika virus, and the Yellow fever virus. Some arboviruses transmit such diseases to human hosts through mosquitoes. Clinically, the disease is manifested as fever, skin rash, and, in some cases, severe neurological or haemorrhagic complications. Dinga Dinga virus seems to resemble other flaviviruses bearing a significant similarity in some biological properties though less about this virus is known as regards special features or pathogenesis.

The Management and Treatment of Dinga Dinga Virus

Although there is no specific antiviral drug for Dinga Dinga Virus, supportive measures are mainly used in treating the infestation to reduce the symptoms and prevent complications. The following are common among the approaches used in treating and managing Dinga Dinga Virus:

Do symptomatic management: Fever and Pain Management: Using antipyretic and analgesic drugs such as Paracetamol (acetaminophen) control fever and pain symptoms associated with this HA virus infection. But Non-Steroidal Inflammatory Drugs (NSAIDs) including ibuprofen are never used mainly in cases where there is suspicion of developing bleeding complications, given the risk of use.

Hydration: Hydration is an essential preventive measure against dehydration, especially in patients with febrile or gastrointestinal symptoms such as vomiting and diarrhea.
Rest: Rest is the most basic immune-aiding activity recommended for recovery.
Observation and Supportive Care: Hospitalization is done in severe cases, especially in cases with neurologic complications like seizures or encephalitis. Still monitoring is done carefully. The supportive care could be intravenous fluids, electrolytes, and oxygen therapy for those with respiratory distress.
Antiepileptic drugs can be given to people who have a seizure.
Management of Severe Types: There are rare circumstances where DDV can result in even bleeding or organ dysfunction that could even subside into a need for blood transfusion or monitoring of organ function or intensive care unit (ICU) care as specialized management.

Prevention:

Following methods are primarily the ones in focus when there are no currently available antivirals for fine or DDV in preventing it, thus eliminating the possibility of getting stung by a mosquito vector:
•To maintain the use of mosquito repellent with DEET or any other effective mosquito repellent;
•Wearing long-sleeved clothing and long pants ";
•Screens on windows and rooftop beds and nets can offer some protection against this mosquito when most active-early in the morning and late in the evening;
•Proper maintenance of sealed containers
•Use of optimal hygiene for eliminating areas attracting water mosquitoes with stagnant water.
Even though there are no direct antiviral therapies for DDV, the crux is vector control

Origin of Dinga Dinga Virus/causes

The reason behind Dinga-Dinga viral infection is the mosquito bite from infected mosquitoes. Mosquitoes then act as virus carriers to pass it to other individuals. Primarily, it is Esteemed that like other flaviviruses, DDV is reasonably spread by Aedes mosquitoes, although many other mosquito species could keep it in its store to serve as a tool to spread.
conditions:
Vector Mosquito-borne transmission via: Dengue Dengue virus is mainly the mainland transmission virus by the mosquito species Aedes, which is predominating, followed by Aedes aegypti and then by Aedes albopictus. This infection development takes place within the mosquito's body as it sucks blood from an infected human or animal. It turns out that this virus can be found in the saliva of Aedes mosquito, which can be easily injected into human.
Zoonotic Transmission: Although mosquito appears to be the primary iterator by which one human becomes affected by any virus, there is evidence that DDV cannot exclude zoonotic transmission, the possibility being exemplified in that the origin of the virus may be in animals, probably closely primate related or rodents. Animals feed through mosquito bites if they contract the piece, of animals infected and then healthy, the mosquito bite accords some justice. Abilities climaxes once again from the point where the infection is believed to have originated, that is, known to be zoonotically transferred from various primates and rodents to man.
Environmental and Climatic Factors: Environment and climatic change-endowed favorable conditions support the mosquito breeding. The above mentioned conditions characterize a favorable habitat for mosquito breeding - warm, humid, and waterlogged areas where these vectors lay their eggs.
Anthropogenic measures including poor sanitation and urbanization, besides changes in weather, can result in increased breeding habitats and broader areas under risk of infection transmission
Dynamics of Human Movement and Urbanization: Aside from overlaps in breeding ground and increased mobility and urbanization further enhance the spread of the DDV. Particularly for cross-regional travelers who may book their travels with mosquito control that's very poor in that part of the world, the virus can be carried to new areas most likely from another region and can spark off a local outbreak.In the whole aspect, while the prime route of transmission is always from mosquitoes to man, environmental, ecological, and human influences on modeling DDV spread are phenomenally significantly greater in assessing and preparing self from its future epidemics

Symptoms of Dinga Dinga Virus

The symptoms of Dinga Dinga virus (DDV) are believed to be similar to those of other flavivirus infections, though they can vary in severity depending on the individual and the course of the disease. While many infections may remain asymptomatic or mild, others can lead to more severe symptoms. The following are the most commonly observed symptoms of DDV infection:
Mild Symptoms:
•Fever: One of the most common early signs of DDV infection, typically ranging from mild to moderate.
•Headache: A general headache, often accompanied by a sense of pressure or heaviness in the head.
•Fatigue: Tiredness and weakness that may persist for several days or weeks.
•Joint and Muscle Pain: Muscle aches and joint pain, similar to those seen in Dengue or Zika virus infections.
•Rash: A mild skin rash may appear, usually after the onset of fever, and can resemble the rash seen in other viral infections.
•Nausea and Vomiting: Gastrointestinal discomfort, including nausea, vomiting, and loss of appetite.
2.Severe Symptoms (in rare cases):

•Neurological Symptoms: In some cases, particularly in vulnerable individuals, DDV infection can lead to more severe neurological manifestations, such as confusion, seizures, and encephalitis (inflammation of the brain). This is rare but can result in long- term complications.
•Hemorrhagic Symptoms: Although rare, DDV may lead to hemorrhagic symptoms similar to those of Dengue fever, such as bleeding gums, nosebleeds, or easy bruising.

Complications

In severe cases, especially in immunocompromised individuals or those with pre- existing health conditions, DDV can lead to organ dysfunction, including liver damage, or may exacerbate other underlying health problems. It is important to note that many infected with the Dinga Dinga virus will have just very mild symptoms or even be asymptomatic. It is quite rare to have severe complications. However, if an individual has any current illnesses or are of quite an elder age or have any co-infections, this increases that their risks would be the one affected

Evaluation by Dinga Dinga Virus

Dinga Dinga virus (DDV) infection evaluation, history of the patient, clinical trials, and the selection of laboratory tests and diagnostic investigations will be necessary to confirm the presence of the virus and rule out other diseases similar to it. However, as an under-investigated group until now, stupid practical knowledge needed for selection of DDV will, frankly, be made difficult to the sufferer owing to a particularly shared symptom set with the viruses borne by mosquitoes, such as Dengue, Zika, or Chikungunya. Typically, DDV evaluation is as follows:
Clinical Evaluation
Medical History – As with most suspected DDV infection evaluations image being built up from a history of places recently visited or traveling aboard, in a nutshell, being bitten by a mosquito with an incidence thereof, as well as any attendant fever, rash, headache, joint pains, or neurological manifestations.
Physical Exam: fever, rash, joint pain, and neurological signs (if present) are typically signified during a physical examination. These are typical symptoms of a viral infection such as pin-sized hemorrhagic rashes, jaundice (evidence for liver involvement), or neurological impairment.
Laboratory Testing
No clinical features specific to DDV deems definitively established, and most, if not all, of the laboratory tests are diagnostic by determination.
Polymerase Chain Reaction (PCR): This qualitative PCR detects the virus' RNA in the patient's blood; it is best done during primary infection. It is highly sensitive and can offer confirmation.
Serology: Serological test can also be made positive also, for example, ELISA (an enzyme-linked immunosorbent assay) can point out IgM and IgG antibodies specific to the same virus DDV. IgM normally appears at early infection and will tell that the individual has been exposed to the pathogen; IgG, however, may suggest that one has had a previous infection or immunity
Viral culture:The more commonly observed exceptions to this rule are the use of the even more challenging viral culture and slow turnaround time, such as in situations of viral cultures from patient samples.
Cross-Reactivity Testing: DDV belongs to a large family of diseases, flaviviruses, and it looks very much like other flaviviruses such as: Dengue, Zika, and West Nile viruses. This large block from such a family usually cross-reacts and therefore may need other assays or sequencing to establish DDV as the cause of infection.
Differential Diagnosis
Symptoms of delayed-onset coalescent deficiency is somewhat seen in other viral infections hence, differential diagnosis aims to rule out other diseases that mimic the clinical presentation of COALESCE, such as Dengue virus, Zika virus, Chikungunya virus, Yellow Fever virus, Malaria, and Leptospirosis.
It is essential to have a detailed clinical and laboratory assessment to compare the previously mentioned diseases with delayed-onset coalescent deficiency.
Imaging and Other Tests (in Severe Cases)
MRIs/CTs: In severe cases with neurological symptoms, imaging techniques such as magnetic resonance imaging (MRI) or computed tomography scans may be undertaken to investigate possible inflammation of the brain, encephalitis, or other secondary complications.
LFT: Whenever the liver is thought to be involved, then liver function tests (LFTs) can be obtained to determine if it is a viral-induced liver disease.

Detection of Dinga Dinga Virus

The detection of Dinga Dinga virus (DDV) is better done by laboratory diagnostic tests and not simply by clinical symptoms as both have overlapping characteristics with those of similar vectors like Dengue, Zika, and Chikungunya viruses. Molecular and serological are the commonest forms of DDV detection. Below are the most common methods of DDV detection:
Polymerase Chain Reaction (PCR)
RT-PCR (Reverse Transcription) PCR: This is the most reliable test in the early stages of viral infection that detects DDV; it detects viral RNA in the blood. PCR recognizes the virus within less time of onset of signs or symptoms because viruses reproduce very fast after being transmitted. This procedure is very sensitive and specific to allow for very fast diagnostics.

•Quantitative PCR (qPCR): This often determines the viral load for assessing the extent of infection.

Serology

•An enzyme immunoassay: With ELISA, IgM or/and IgG can easily be detected, which are generated by the immune system against infection. IgM is produced against DDV- induced infections early at the very earliest days or within a week, whereas IgG indicates past exposure to or immunity in the viral relation.

•IgM Capture ELISA: Here IgM antibodies are targeted in detecting recently started infection and in distinguishing DDV from other Flavivirus infections. The cross- reactivity possibilities between DDV and other Flaviviruses, for instance, Dengue and Zika, occur primarily through calculations.

Viral Culture

•Viral culture is one of the methods to detect DDV employing, but is less commonly used routinely in complex diagnosis and takes a bit of time to grow; it can be confirmed in research or some such specialized laboratory; DDV is the confirmation of its existence in the specimen. Generally, the virus is evolved by culturing blood or tissue shelved for isolation which would consume several days.

Reverse Transcription Loop-Mediated Isothermal Amplification (RT-LAMP)

•RT-LAMP is another diagnostics coming up that show promise in rapid and on-site diagnosis of DDV. It is simpler and faster when traditional PCR and is applicable without need of specialized laboratory instruments. The viral RNA is detected using RT-LAMP method, studied for field applications with special attention to resource-poor settings.

Next-Generation Sequencing (NGS)

•In research, the utility of Next Generation Sequencing (NGS) can be channeled towards detecting DDV and understanding its genomic structure. NGS will validate the presence of the virus and may pick up on a plausible number of genetic variants. It is helpful more for epidemiological studies and virus surveillance purposes rather than for profiling discrete clinical cases.

Cross-Reactivity Testing

•As a flavivirus, DDV shares a lot of characteristics with other flaviviruses, like Dengue, Zika, and West Nile viruses. This then tends to cause cross-reactivities in serological testing procedures, leading to false positives. Further tests, such as PCR, possibly additional, will be required for confirmation. Also, virus-specific antibodies and viral RNA sequencing would differentiate it from other flavivirus infections.

CONCLUSION

Dinga Dinga virus (DDV) falls into the Flavivirus genus and is an emerging mosquito-borne pathogen. This virus remains mostly unexplored, but its impact on public health can never be underscored. It shares a few attributes with the other known flaviviruses since it primarily uses the mosquito as a means for transmission and clinical presentation, prominently dengue, Zika, and West Nile. However, because of little work and recent discovery, most properties of the virus, like its complete clinical profile, pathogenesis, and epidemiology, are still under investigation.

The existing diagnostic tools, such as polymerase chain reaction and serology, offer compelling ways to trace this virus, though the technologically imminent challenges involve extra-

Sensitivity and synopsis reactions with other flaviviruses. Indeed, as yet, not standard- or nursed to post-treatment supportive care exists for these infections, so the current treatment modalities are geared towards symptomatic relief and complications monitoring. Preventive tactics, primarily surrounding vector control to restrict the mosquito situation to humans, mar the human availability to them.

Currently, increased global traveling and a changing environment of mosquito vectors occur notably after the expansion of the DDV, yet escalatory interventions will be an issue. More surveillance, continued research into transmission dynamics, and birth of targeted diagnostic tests and vaccines will be essential going forward in the management and control of the virus. It is a ringing endorsement of the greater preparedness and response strategies on emerging infectious diseases to have timely detections and management in parts that are at risk.

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