CONDITION

Russian autumnal encephalitis

Russian autumnal encephalitis is a historical name for mosquito-borne Japanese encephalitis affecting the brain.

WHAT IT IS
Mosquito-borne viral inflammation of the brain

BODY SYSTEM
Nervous system

MAIN SYMPTOMS
Fever, severe headache, confusion, seizures

WHAT CAUSES IT
Japanese encephalitis virus infection

HOW IT IS DIAGNOSED
Blood or spinal fluid antibody testing

MAIN TREATMENT
Supportive hospital care and rehabilitation

CAN IT BE CURED?
No - no specific antiviral cure

IS IT AN EMERGENCY?
Yes - suspected brain inflammation needs emergency care

LONG-TERM OUTLOOK
Recovery possible; lasting neurological disability or death can occur

Overview

Russian autumnal encephalitis is an older name associated with Japanese encephalitis , a viral infection spread by mosquitoes. Modern medical records and public health guidance usually use the term "Japanese encephalitis" rather than Russian autumnal encephalitis.

The virus can infect the central nervous system, which includes the brain and spinal cord. When it causes inflammation of the brain, this is called encephalitis .

Most people infected with Japanese encephalitis virus do not develop symptoms. Some have a mild illness with fever and headache. A small proportion develop encephalitis, which is a medical emergency.

Severe infection can affect consciousness, movement, speech, swallowing, memory, and

behaviour. Some people recover fully, while others need rehabilitation or have lasting difficulties. The condition can also be fatal.

Despite the historical name, "autumnal" does not mean that infection can only happen during autumn. Risk is linked to where infected mosquitoes are present, local transmission seasons, outdoor exposure, and vaccination status.

Symptoms

Symptoms usually begin several days after the bite of an infected mosquito. The typical incubation period-the time between infection and symptoms-is about 4 to 14 days.

A mild infection may cause:

If encephalitis develops, symptoms may become more serious. They can include:

Children may be irritable, unusually sleepy, difficult to wake, or less responsive than normal. A seizure may be the first obvious sign.

These symptoms are not specific to Japanese encephalitis. Other infections, strokes, immune conditions, and toxic exposures can cause similar problems. Urgent medical assessment is needed to identify the cause.

- Fever
- Headache
- Tiredness
- Nausea or vomiting
- Severe headache
- Stiff neck
- Confusion or unusual behaviour
- Difficulty staying awake
- Seizures
- Muscle weakness or paralysis
- Shaking, stiffness, or abnormal movements
- Problems speaking or swallowing
- Loss of coordination
- Reduced consciousness or coma

Causes and risk factors

Russian autumnal encephalitis is linked historically to Japanese encephalitis virus , a flavivirus. Flaviviruses are a group that also includes West Nile, dengue, yellow fever, and tick-borne encephalitis viruses.

The virus is mainly spread by infected Culex mosquitoes. It circulates in a cycle involving mosquitoes and animals, particularly pigs and water birds. People usually become infected after a mosquito feeds on an infected animal and later bites them.

Humans generally do not carry enough virus in their blood to pass it back to mosquitoes. The infection does not normally spread through everyday contact, coughing, sharing food, or touching someone who is ill.

Japanese encephalitis occurs mainly in parts of Asia and the western Pacific. Risk is often greater in rural or farming areas where mosquitoes, pigs, and water birds are close together. Irrigated fields and standing water can support mosquito breeding.

Factors that may increase exposure include:

Short visits limited to urban areas generally carry a lower risk, but local outbreaks and travel plans can change the assessment.

- Living in or visiting an area where the virus circulates
- Spending substantial time outdoors, especially from dusk to dawn
- Staying near rice fields, wetlands, or pig farming
- Travelling during a local transmission season
- Longer stays or repeated travel to affected areas
- Not being vaccinated when vaccination is appropriate for the planned exposure

Diagnosis

Symptoms alone cannot confirm Japanese encephalitis. Testing is needed because several other forms of meningitis and encephalitis can look similar.

Doctors may take a blood sample and perform a lumbar puncture . During a lumbar puncture, a needle is placed in the lower back to collect a small amount of cerebrospinal fluid, the clear fluid surrounding the brain and spinal cord.

The main diagnostic method looks for IgM antibodies against Japanese encephalitis virus in blood or cerebrospinal fluid. IgM antibodies are immune proteins that appear in response to a

recent infection.

Antibody tests can sometimes react to related flaviviruses or previous vaccination. A specialist laboratory may use additional testing, such as a plaque-reduction neutralisation test, to clarify uncertain results.

Direct tests for the virus, including polymerase chain reaction or PCR, may be used in some situations. However, the virus is often no longer detectable in blood or spinal fluid by the time neurological symptoms begin. A negative PCR result therefore does not always rule out the infection.

Other investigations may include brain imaging, an electroencephalogram to measure electrical activity in the brain, and tests for other infections. These help assess the effects on the brain and exclude other causes.

Treatment and management

There is no specific antiviral treatment proven to eliminate Japanese encephalitis virus. Treatment focuses on supporting the body, preventing further injury, and managing complications while the immune system responds.

A person with suspected encephalitis usually needs hospital care. Treatment may include:

Severe illness may require intensive care. If swallowing is unsafe, temporary tube feeding may be needed to prevent food or liquid entering the lungs.

Once the acute infection has settled, rehabilitation can help with ongoing problems. Depending on the effects, this may involve physiotherapy, occupational therapy, speech and language therapy, psychological support, or specialist neurological care.

Rehabilitation goals are personal. They may include improving walking, hand use, communication, swallowing, memory, behaviour, or independence with everyday activities.

- Fluids and nutritional support
- Oxygen or breathing support
- Medicines to control seizures
- Treatment for fever, pain, or nausea
- Monitoring of consciousness and vital signs
- Management of raised pressure or swelling in the brain

Complications

Brain inflammation can damage areas involved in movement, awareness, learning, and basic body functions. Complications may begin during the acute illness or become clearer during recovery.

Possible complications include:

Children may have later difficulties with development, schoolwork, attention, or behaviour. These effects may only become clear as they grow and face more complex tasks.

Reduced consciousness, uncontrolled seizures, breathing problems, and swelling in the brain can be life-threatening. Some people die during the acute illness. Among survivors, the level of recovery ranges from complete recovery to substantial long-term disability.

- Ongoing seizures or epilepsy
- Weakness, paralysis, stiffness, or tremor
- Problems with balance and coordination
- Difficulty speaking or understanding language
- Unsafe swallowing and repeated chest infections
- Memory, concentration, or learning difficulties
- Changes in mood, personality, or behaviour
- Tiredness and reduced stamina
- Loss of independence with daily activities

Prevention

Japanese encephalitis can sometimes be prevented through vaccination and protection from mosquito bites. Vaccination does not treat an infection that has already begun.

Japanese encephalitis vaccines are available in many countries. Whether vaccination is appropriate is based on the destination, length and season of travel, rural or outdoor exposure, planned activities, and current local transmission. A travel health service can review these factors before departure. Starting this discussion early allows time for the recommended vaccine schedule.

You can reduce mosquito bites by:

Mosquito precautions remain important after vaccination because no vaccine gives complete protection, and mosquitoes can transmit other infections.

There is no usual need to isolate someone with Japanese encephalitis. It does not normally pass directly from one person to another.

- Using an insect repellent recommended by public health authorities
- Wearing long sleeves, long trousers, and closed footwear
- Sleeping in screened or air-conditioned rooms
- Using a mosquito net when rooms are not adequately screened
- Following product directions when treating clothing or equipment
- Removing standing water around accommodation when practical

Living with it and what to expect

The early course can change quickly over hours or days. People with encephalitis may need close monitoring until their consciousness, breathing, seizures, and ability to swallow are stable.

Recovery may continue over months or longer. Improvements can occur gradually, and progress may not follow a steady pattern. Tiredness, reduced concentration, weakness, and slower thinking can remain even when the person looks physically well.

Some people return to their previous activities without major limitations. Others need help with mobility, communication, education, employment, or personal care. Lasting neurological problems are more likely after severe brain inflammation, prolonged seizures, or a long period of reduced consciousness, but an individual outcome cannot be predicted from one symptom alone.

Follow-up may include neurological review, seizure management, hearing or swallowing assessment, and rehabilitation. Children may need developmental and educational monitoring as they grow. Adults returning to work or study may benefit from a gradual plan and adjustments to workload.

New or worsening symptoms should not automatically be assumed to be part of recovery. A new seizure, sudden weakness, marked confusion, or reduced consciousness needs urgent assessment.

When to get medical help

Seek emergency medical help for anyone with fever or recent illness who develops:

Do not wait for a rash or for every typical symptom to appear. Encephalitis can have several causes, and early hospital assessment is important.

Arrange routine medical follow-up after discharge if memory, mood, movement, speech, swallowing, seizures, or daily functioning are not improving as expected. Routine review is also appropriate when symptoms interfere with school, work, sleep, or personal care.

If you are planning travel to an area where Japanese encephalitis occurs, seek travel health advice before departure. This is preventive planning rather than an emergency.

- Confusion, unusual behaviour, or difficulty waking
- A seizure, especially a first seizure
- Sudden weakness, paralysis, or loss of coordination
- A severe headache with a stiff neck
- Problems breathing or swallowing
- Loss of consciousness

Common questions

Is Russian autumnal encephalitis different from Japanese encephalitis?

The term is historical and is generally associated with Japanese encephalitis described in the Russian Far East. Modern clinicians use the specific diagnosis "Japanese encephalitis." If the wording appears in an older record, the location, date, laboratory results, and original clinical notes may help confirm what was meant.

Can I catch it from another person?

Not through ordinary contact. The virus is mainly spread by mosquitoes in a cycle involving animals and birds. People do not usually develop enough virus in their blood to infect another mosquito or pass the infection directly to others.

Does an infected mosquito bite always cause encephalitis?

No. Most Japanese encephalitis virus infections cause no symptoms. Some cause a mild fever and headache, while a small proportion affect the brain. It is not possible to tell from the appearance of a mosquito bite whether the mosquito carried the virus.

Can Japanese encephalitis be cured?

There is no specific antiviral like acyclovir or oseltamivir cure. Hospital care can support breathing, control seizures, manage other complications, and give the body time to recover. Rehabilitation may improve function after the acute illness.

Can you get Japanese encephalitis twice?

Infection is expected to produce lasting immune protection, but symptoms that resemble encephalitis can have many other causes. A later episode of fever, confusion, seizures, or weakness still needs urgent medical assessment rather than being assumed to be the same infection.

Does the vaccine completely prevent it?

No vaccine provides complete protection. Vaccination can greatly reduce risk when given appropriately, but mosquito precautions are still needed. Vaccine choice and timing should be based on current travel guidance and the planned exposure.

Sources

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