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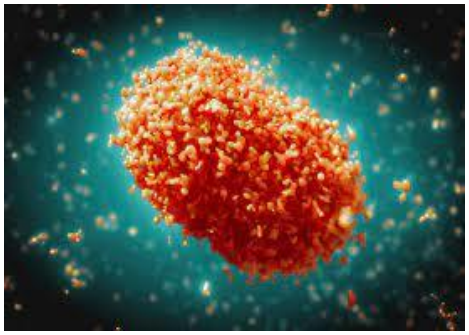
Monkeypox virus

Monkeypox is a viral zoonosis (a virus transmitted to humans from animals) with symptoms similar to those seen in the past in smallpox patients. Monkeypox has emerged as the most important orthopoxvirus for public health. Monkeypox primarily occurs in central and west Africa, often in proximity to tropical rainforests, and has been increasingly appearing in urban areas. Animal hosts include a range of rodents and non-human primates.



1- Introduction

Monkeypox virus is an enveloped double-stranded DNA virus that belongs to the Orthopoxvirus genus of the Poxviridae family. There are two distinct genetic clades of the monkeypox virus: the central African (Congo Basin) clade and the west African clade. The Congo Basin clade has historically caused more severe disease and was thought to be more transmissible.

2- Transmission

1. Animal-to-human (zoonotic) transmission:

It can occur from direct contact with the blood, bodily fluids, or cutaneous or mucosal lesions of infected animals. In Africa, evidence of monkeypox virus infection has been found in many animals including rope squirrels, tree squirrels, Gambian pouched rats, dormice, different species of monkeys and others. Eating inadequately cooked meat and other animal products of infected animals is a possible risk factor. People living in or near forested areas may have indirect or low-level exposure to infected animals.

2. Human-to-human transmission:

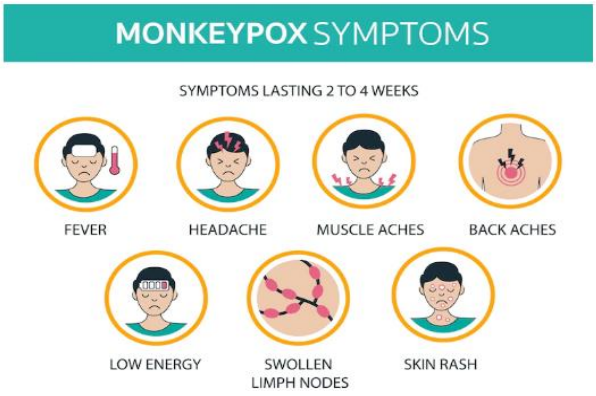
It can result from close contact with respiratory secretions, skin lesions of an infected person or recently contaminated objects . Transmission via droplet respiratory particles usually requires prolonged face-to-face contact, which puts health workers, household members and other close contacts of active cases at greater risk.

3. Mother to fetus transmission:

Transmission can also occur via the placenta from mother to fetus (which can lead to congenital monkeypox) or during close contact during and after birth. While close physical contact is a well-known risk factor for transmission.

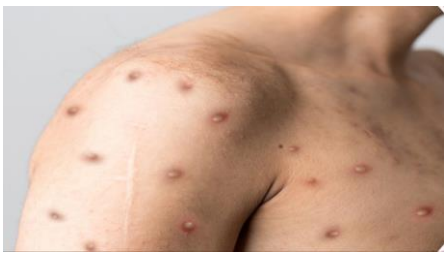
3- Signs and symptoms

The incubation period (interval from infection to onset of symptoms) of monkeypox is usually from 6 to 13 days but can range from 5 to 21 days.



The infection can be divided into two periods:

- The invasion period (lasts between 0–5 days) characterized by fever, intense headache, lymphadenopathy (swelling of the lymph nodes), back pain, myalgia (muscle aches) and intense asthenia (lack of energy). Lymphadenopathy is a distinctive feature of monkeypox compared to other diseases that may initially appear similar (chickenpox, measles, smallpox).



- The skin eruption usually begins within 1–3 days of appearance of fever. The rash tends to be more concentrated on the face and extremities rather than on the trunk.

4. Treatment and management of monkeypox virus:

Monkeypox is usually a self-limited disease with the symptoms lasting from 2 to 4 weeks. Severe cases occur more commonly among children and are related to the extent of virus exposure. Clinical care for monkeypox should be fully optimized to alleviate symptoms, manage complications and prevent long-term sequelae. Patients should be offered fluids and food to maintain adequate nutritional status. Secondary bacterial infections should be treated as indicated. An antiviral agent known as tecovirimat that was developed for smallpox was licensed by the European Medicines Agency (EMA) for monkeypox in 2022 based on data in animal and human studies.

Common Q & A

1. Is there a vaccine against monkeypox virus?

Vaccination against smallpox was demonstrated through several observational studies to be about 85% effective in preventing

monkeypox.

Some laboratory personnel or health workers may have received a more recent smallpox vaccine to protect them in the event of exposure to orthopoxviruses in the workplace. A still newer vaccine based on a modified attenuated vaccinia virus (Ankara strain) was approved for the prevention of monkeypox in 2019. This is a two-dose vaccine for which availability remains limited. Smallpox and monkeypox vaccines are developed in formulations based on the vaccinia virus due to cross-protection afforded for the immune response to orthopoxviruses.

2. How do you avoid getting monkeypox virus?

Raising awareness of risk factors and educating people about the measures they can take to reduce exposure to the virus is the main prevention strategy for monkeypox. Other prevevtion strategies include:

- Reducing the risk of human-to-human transmission.
- Reducing the risk of zoonotic transmission.
- Preventing monkeypox through restrictions on animal trade:

Some countries have put in place regulations restricting importation of rodents and non-human primates. Captive animals that are potentially infected with monkeypox should be isolated from other animals and placed into immediate quarantine. Any animals that might have come into contact with an infected animal should be quarantined, handled with standard precautions and observed for monkeypox symptoms for 30 days.

Source:

https://www.who.int/news-room/questions-and-answers/item/monkeypox?gclid=Cj0KCQiAnNacBhDvARIsABnDa6_jX6mQyZ05zy8iYyAymePU5wafpgvHmLp08VSExtvAf4qzyt1BmusaAjzXEALw_wcB

Zavegepant Nasal Spray Shows Promise in Acute Treatment of Migraine

A migraine is a headache that can cause severe throbbing pain or a pulsing sensation, usually on one side of the head. It's often accompanied by nausea, vomiting, and extreme sensitivity to light and sound. Migraine attacks can last for hours to days, and the pain can be so severe that it interferes with your daily activities.

Migraine causes:

Though migraine causes aren't fully understood, genetics and environmental factors appear to play a role.Changes in the brainstem and its interactions with the trigeminal nerve, a major pain pathway, might be involved. So might imbalances in brain chemicals including serotonin, which helps regulate pain in your nervous system. Researchers are studying the role of serotonin in migraines. Other neurotransmitters play a role in the pain of migraine, including calcitonin gene-related peptide (CGRP).

Migraine triggers:

- **Hormonal changes in women.**
- **Drinks:** these include alcohol, especially wine, and too much caffeine, such as coffee.
- **Stress:** stress at work or home can cause migraines.
- **Sensory stimuli:** bright or flashing lights can induce migraines, as can loud sounds. Strong smells such as perfume, paint thinner, secondhand smoke and others trigger migraines in some people.
- **Sleep changes:** missing sleep or getting too much sleep can trigger migraines in some people.
- **Physical factors:** intense physical exertion, including sexual activity, might provoke migraines.
- **Weather changes:** a change of weather or barometric pressure can prompt a migraine.
- **Medications:** oral contraceptives and vasodilators, such as nitroglycerin, can aggravate migraines.
- **Foods:** aged cheeses and salty and processed foods might trigger migraines. So might skipping meals.

Zavegepant could become the first intranasal drug that targets CGRP in migraine sufferers to gain FDA approval.

Treatment with zavegepant nasal spray (Biohaven) produced positive findings in a phase 2/3 for the calcitonin gene related peptide (CGRP) receptor antagonist for the acute treatment of migraine.

The results of the study, published in Headache, showed that zavegepant 10 mg and 20 mg were more effective than placebo. for the primary end points of pain freedom at 2 hours after dose administration (placebo: 15.5% [98.3% CI, 11.1, 19.8]; 10 mg: 22.5% [98.3% CI, 17.5,

27.6; P = 0.0113]; 20 mg: 23.1% [98.3% CI, 18.1, 28.2; P = 0.0055]) and freedom from the most bothersome symptom (MBS) at 2 hours after administration (placebo: 33.7% [98.3% CI, 28.0, 39.3]; 10 mg: 41.9% [98.3% CI, 36.0, 47.9; P = 0.0155]; 20 mg: 42.5% [98.3% CI, 36.6, 48.4; P =0.0094]).

The FDA set the Prescription Drug User Fee Act date for zavegepant in Q1 2023. If approved, zavegepant would become the first intranasal drug that targets CGRP in migraine sufferers to gain FDA approval.

These results suggest that zavegepant may have a therapeutic role in the acute treatment of migraine as an effective alternative to oral and parenteral agents, the study authors wrote. "Patients most likely to benefit from the use of zavegepant will be adults seeking a rapid onset of action (e.g., people regularly awakened by attacks) and those whose attacks typically involve marked gastrointestinal distress. The nasal spray formulation may be a particularly advantageous nonoral, needle-free approach to avoid exacerbations of nausea or vomiting, facilitate drug administration, and eliminate the effects of gastroparesis on drug absorption."

The study authors evaluated 1673 patients 18 to 79 years of age, administered either zavegepant 5 mg, 10 mg, 20 mg, or placebo. Pain freedom was evaluated using ratings of pain intensity on a 4-point scale.

The study randomized 1588 individuals to the safety cohort and 1581 to the efficacy cohort. Most of the patients were female (85.5%) and White (78.3%), with a mean body mass index of 27.4 kg/m2. At the start of the study, 13.6% of participants used preventive migraine medications. Whereas the 10 and 20 mg doses of zavegepant showed statistical significance for the coprimary end points, the results for the 5 mg dose were not deemed significant. For the trial’s secondary efficacy end points, 53.6% patients in the placebo cohort had pain relief at 2 hours postdose compared with 60.6% and 61.2% for the zavegepant 10- and 20-mg cohorts, respectively.

Zavegepant was found to be superior to placebo on multiple secondary end points, which included return to normal function at 30 min postdose with zavegepant 20 mg and sustained pain freedom from 2 to 48 hours postdose with zavegepant 5, 10, and 20 mg.The most common treatment-emergent adverse events (AEs) in the zavegepant cohort were dysgeusia (zavegepant: 13.5% to 16.1%; placebo: 3.5%), nausea (zavegepant: 2.6% to 4.1%; placebo: 0.5%) and nasal discomfort (zavegepant: 1.3% to 5.2%; placebo, 0.2%). There were 5

participants who experienced serious AEs, but these were not found to be related to the active treatment, according to the study authors.

Sources:

-https://www.mayoclinic.org/diseases-conditions/migraine-headache/symptoms-causes/syc-20360201.

-Croop R, Madonia J, Stock DA, et al. Zavegepant nasal spray for the acute treatment of migraine: a phase 2/3 double-blind, randomized, placebo-controlled, dose-ranging trial. Headache. Published online October 14, 2022

Real Enquiries

At the " Drug Information Center" we respond to enquiries from the professional health team as well as from others. Here's one of the enquiries received at the center

Enquiry received from : S.A.- Assiut

Enquiry: A relative stepped over a nail last night and feels discomfort and heat in his foot. What should he do? Is it too late for a tetanus shot?

Summary of the answer:

He should visit the nearest minor injuries unit if he's concerned about the wound , particularly if :

- The wound is deep
- The wound contains dirt or a foreign object
- He haven't been fully vaccinated against tetanus
- He's not sure whether he's been fully vaccinated against tetanus.

The first step should be to clean the wound with soap and water . Use an antibiotic cream and keep the wound covered with a bandage until it scabs over .Although tetanus-causing bacteria need three days to incubate and release the toxin into blood, you do not have to wait for that long. Soon after you get wounded, try to recall the last time you get a shot of tetanus.

Tetanus vaccine should be given when vou are young and be repeated once evry ten years. When you step on a rusty nail and haven't got the shot in the last five years you need to go to the hospital within 24 hours to get the shot. If you have got the shot within the last five years and the wound is not deep and severe, you can take your time to see whether you have the tetanus symptoms. One thing to remember is that the size of your wound will not determine the risk of catching tetanus. Thus, it is always better to seek for medical advice after you perform first aids to handle your wound.

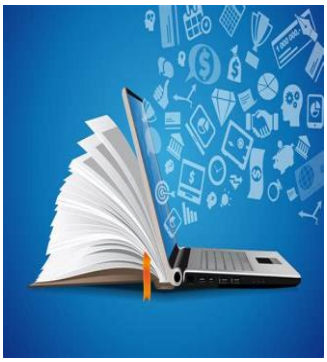
Sources:

1)Woundcaresociety.org/how-soon-after-stepping-on-a-rusty-nail-should-you-get-a-tetanus-shot

2) www.nhs.uk/chq/pages/1316.aspx?categoryid=67

3)www.emergencycareforyou.org/Health-Tips/Prevention/Do-I-Need-A-Tetanus-Shot-/

Test Your Knowledge



1. **Pantoprazole is used primarily to treat:**
   a) Gastric hyperacidity
   b) Hypertension
   c) Cardiac insufficiency
   d) Gout

2. **Gas gangerene is commonly caused by:**
   a) Pasteurella.
   b) Clostridia.
   c) Rickettsia.
   d) Shigella.

3. **The principal hydrolysis degradation product of aspirin is:**
   a) Salicylic acid.
   b) Methyl salicylate.
   c) Salicylamide.
   d) Acrolein.

4. **Whish of the following dieuritics don't cause potassium loss:**
   a) Furosemide.
   b) Chlorthalidone.
   c) triamterene.
   d) Metolazone.

Answers:

1. (a) 2. (b) 3. (a) 4. (c)

Ask the expert

Question :My 4 year old son has been complaining from pain in both his legs since yesterday, to the extent that it is causing him to limp. He had a cold last week but he improved on OTC common cold medications. However, I am truly concerned about that limp?

Doctor's answer: This is probably what we call transient synovitis. It ususally occurs in children from the age 3- 8 years old with male predominance. It is commonly seen post recovery from cold or flu symptoms. As long as there is no fever and no swelling, redness or hotness at the joints, and the child is otherwise systemically well, no action should be taken at this time. Nevertheless if the symptoms persist for more than 48 hours, seek medical attention because further investigation will be required. (Dr. E.V. Helmy, Pediatrician at Assiut hospital of Obstetrics,Gynaecology and Pediatrics)