CHIPS REGIMEN

Drug Information News Letter
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Nipah Virus

Nipah Virus is an emerging infectious disease that broke out in Malaysia and Singapore in 1998 and 1999. It first appeared in domestic pigs and has been found among several species of domestic animals including dogs, cats, goats, horses and sheep. The infection is also known to affect human beings. The organism which causes Nipah Virus encephalitis is an RNA or Ribonucleic acid virus of the family Paramyxoviridae, genus Henipavirus, and is closely related to Hendra virus.

Transmission:

The disease spreads through fruit bats or 'flying foxes,' of the genus Pteropus, who are natural reservoir hosts of the Nipah and Hendra viruses. The virus is present in bat urine and potentially, bat faeces, saliva, and birthing fluids. Presumably, the first incidence of Nipah virus infection occurred when pigs in Malaysian farms came in contact with the bats who had lost their habitats due to deforestation. Furthermore, transmission between farms may be due to fomites – or carrying the virus on clothing, equipment, boots and vehicles.

Pathogenesis:

Widespread vasculitis, a key event in the pathogenesis of Nipah virus infection, seems to be a consequence of infection of the vascular endothelial and smooth muscle cells. Overall, the frequency of vasculitis seemed to be proportional to necrosis and necrotic plaques, particularly in the CNS and lung. The necrotic plaques and the acute encephalitic syndrome may stem from both direct neuronal infection and ischemic injury. This sequence of pathological events is supported by the concomitant increase in frequency of syncytia, vasculitis, thrombosis, necrotic plaques, and viral antigen in the CNS.

The appearance of similar pathological lesions in several organs at the same time suggests an early viremic phase that follows primary viral replication. In measles, another paramyxoviral infection, primary viral replication occurs in respiratory tract mucosa and lymphoid organs and is followed by a cell-associated viremia. In case of fatal Nipah virus, the extensive lymphoid necrosis and immunostaining of lymphoid and respiratory tissues suggest that these tissues can also be similarly involved in primary replication. Endothelium, although unlikely to be a primary replication site, may act as a site of secondary viral replication and amplification of viremia. The temporal sequence of antibody rise first in serum and then in the CSF provides indirect evidence that viremia occurs before CNS infection and probably reflects the fact that induction of antigen-specific, antibody-secreting B cells first occurs in the peripheral lymphoid tissues.

Symptoms:

Typically, the human infection presents as an encephalitic syndrome marked by fever, headache, drowsiness, disorientation, mental confusion, coma, and potentially death.

Diagnosis:

The diagnosis of Nipah virus infection, suspected by history and clinical manifestations, can be supported by characteristic histopathological findings. These histopathological findings include syncytial giant cell formation, vasculitis, and viral inclusions. Other CNS changes observed, including perivascular cuffing, parenchymal inflammation, and neuronophagia, are rather nonspecific features and can be found in other acute viral encephalitides. From a diagnostic standpoint, perhaps the most unique histopathological finding is the presence of syncytial multinucleated endothelial cells. To our knowledge, this feature has not been described in other infective encephalitides other than Hendra virus encephalitis.

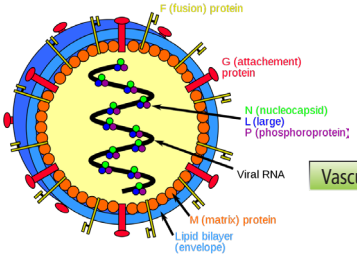
Treatment:

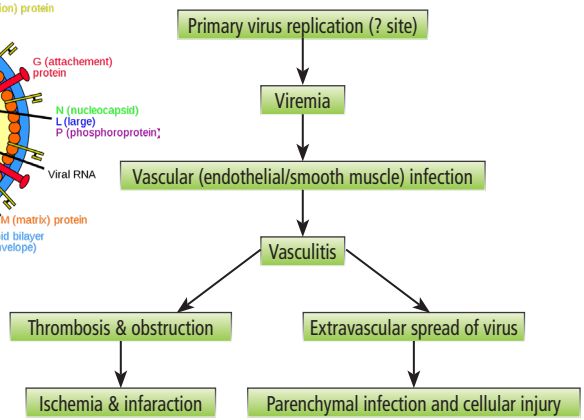
According to the U.S. Centers for Disease Control and Prevention (CDC), supportive care is the only current treatment for this viral infection. There is no vaccine specifically available to protect humans. However, some researchers suggest that the antiviral drug ribavirin may be useful, but there is little or no data to support this. A human monoclonal antibody that targets the G glycoprotein of NiV has shown benefit in a ferret animal model of this disease, but researchers have not studied the effects of the antibody in humans.

Prognosis:

The prognosis of NiV infections is fair to poor. The fatality rate is estimated by the World Health Organization (WHO) to range from 40%-75%, depending upon the local capabilities for surveillance and clinical management (supportive care). Survivors may have residual neurological problems such as seizures and/or personality changes. A few survivors who recover may subsequently relapse or develop delayed onset encephalitis.

Reference : https://www.cdc.gov/vhf/nipah/index.html





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TODAY'S MUST WATCH

The following are few important drugs approved by US FDA during the month APRIL-JUNE 2018.

BRAND	DRUG	INDICATION
Aimovig	Erenumab-aooe	Preventive treatment of migraine.
Andexxa	Coagulation factor Xa	Reversal of factor Xa inhibitors.
Lokelma	Sodium zirconium cyclosilicate	Treatment of hyperkalemia.
Jynarque	Tolvaptan	Treatment of polycystic kidney disease.
Lucemyra	Lofexidine	Management of Opioid withdrawal.
Tavalisse	Fostamatinib disodium hexahydrate	Treatment of chronic immune thrombocytopenia.

- **Aimovig (Erenumab-aooe) :** It is a calcitonin gene-related peptide receptor antagonist. It is specifically indicated for the preventative treatment of migraine in adults and is supplied as an injection for subcutaneous use. The recommended dosage is 70 mg injected subcutaneously once monthly. Some patients may benefit from a dosage of 140mg injected subcutaneously once monthly, which is administered as two consecutive subcutaneous injections of 70mg each.

  Reference : https://www.accessdata.fda.gov/drugsatfda_docs/nda/2018/761077Orig1s000TOC.cfm

- **Lokelma (Sodium Zirconium Cyclosilicate) :** It is a highly-selective, oral potassium-removing agent. It is a non-absorbed zirconium silicate that preferentially captures potassium in exchange for hydrogen and sodium and increases fecal potassium excretion through binding of potassium in the lumen of the gastrointestinal tract. It is specifically indicated for the treatment of hyperkalemia in adults. It is supplied as a solution for oral administration. The recommended dose is 10 g administered three times a day for up to 48 hours.

  Reference : https://www.accessdata.fda.gov/drugsatfda_docs/nda/2018/207078Orig1s000TOC.cfm

- **Jynarque (Tolvaptan) :** It is specifically indicated to slow kidney function decline in adults at risk of rapidly progressing autosomal dominant polycystic kidney disease. Decreased binding of vasopressin to the V2-receptor in the kidney results in a decrease in intracellular adenosine 3', 5'-cyclic monophosphate (cAMP) concentrations causing an increase in urine water excretion, an increase in free water clearance (aquaresis) and a decrease in urine osmolality. The recommended initial dose is 60 mg orally per day as 45 mg taken on waking and 15 mg taken 8 hours later.

  Reference : https://www.accessdata.fda.gov/drugsatfda_docs/nda/2018/204441Orig1s000TOC.cfm

- **Lucemyra (Lofexidine) :** It is specifically indicated for mitigation of opioid withdrawal symptoms to facilitate abrupt opioid discontinuation in adults.It is a central alpha-2 adrenergic agonist that binds to receptors on adrenergic neurons. This reduces the release of norepinephrine and decreases sympathetic tone. The usual starting dosage is three 0.18 mg tablets taken orally 4 times daily during the period of peak withdrawal symptoms (generally the first 5 to 7 days following last use of opioid) with dosing guided by symptoms and side effects. There should be 5 to 6 hours between each dose.

  Reference : https://www.fda.gov/newsevents/newsroom/pressannouncements/ucm607884.htm

STUDENTS CORNER

DRUG APPROVED FOR TREATING MULTI DRUG RESISTANT HIV-1

The US Food and Drug Administration (FDA) approved ibalizumab (Trogarzo, TheratechnologiesInc) for the treatment of adults with multidrug-resistant HIV-1 (MDR HIV-1).

Ibalizumab is a humanized monoclonal antibody administered intravenously every 14 days by a trained medical professional. It is used in combination with other antiretroviral drugs.

It is the first drug in a new class of antiretroviral medications that can provide significant benefit to patients who have run out of HIV treatment options. New treatment options may be able to improve their outcomes.

The approval follows consideration of data from a clinical trial that included 40 heavily treatment-experienced patients with MDR HIV-1 who still had high levels of HIV-RNA in their blood after treatment with other antiretroviral medications. Many study participants had been treated with at least 10 antiretroviral drugs in the past. In most participants, HIV-RNA levels fell significantly 1 week after the addition of ibalizumab to the failing antiretroviral regimens. After 24 weeks of receiving ibalizumab with their other antiretroviral drugs, 43% of participants experienced HIV-RNA suppression.

To date, 292 patients with HIV-1 infection have received ibalizumab intravenous infusion. The most frequently seen adverse effects were diarrhea, dizziness, nausea, and rash. Severe adverse effects included rash and immune reconstitution syndrome.

Reference : https://www.medscape.com/viewarticle/893512

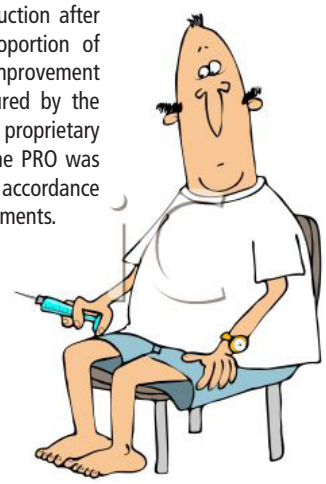
NEW DRUG APPROVED FOR AXILLARY HYPERHIDROSIS

The US Food and Drug Administration (FDA) has approved topical glycopyrronium (Qbrexza, Dermira), for the treatment of adults and children as young as age 9 years who have primary axillary hyperhidrosis.

Qbrexza is a topical anticholinergic cloth applied to the underarms and designed to block sweat production by inhibiting sweat gland activation.

The safety and efficacy of Qbrexza for primary axillary hyperhidrosis were evaluated in two phase 3 clinical trials (ATMOS-1 and ATMOS-2). Both trials assessed the absolute change from baseline in sweat production after treatment with Qbrexza, along with the proportion of patients who achieved at least a 4-point improvement from baseline in sweating severity as measured by the Axillary Sweating Daily Diary (ASDD), Dermira's proprietary patient-reported outcome (PRO) instrument. The PRO was developed in consultation with the FDA and in accordance with the agencies 2009 guidance on PRO instruments.

Reference : https://www.medscape.com/viewarticle/898719



CLINICAL CONNECTION

Lamotrigine induced Immune system Reaction

The Food and Drug Administration (FDA) is warning that the medicine lamotrigine (Lamictal) for seizures and bipolar disorder can cause a rare but very serious reaction that excessively activates the body's infection-fighting immune system. This can cause severe inflammation throughout the body and lead to hospitalization and death, especially if the reaction is not diagnosed and treated quickly. As a result, we are requiring a new warning about this risk be added to the prescribing information in the lamotrigine drug labels.

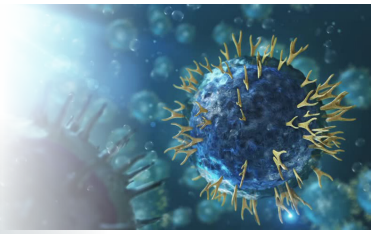
The immune system reaction, called hemophagocytic lympho histiocytosis (HLH), causes an uncontrolled response by the immune system. HLH typically presents as a persistent fever, usually greater than 101°F, and it can lead to severe problems with blood cells and organs throughout the body such as the liver, kidneys, and lungs.

A diagnosis of HLH can be established if a patient has at least five of the following eight signs or symptoms:

- Fever and rash
- Enlarged spleen
- Cytopenias
- Elevated levels of triglycerides or low blood levels of fibrinogen
- High levels of blood ferritin
- Hemophagocytosis identified through bone marrow, spleen, or lymph node biopsy
- Decreased or absent Natural Killer (NK) Cell activity
- Elevated blood levels of CD25 showing prolonged immune cell activation.

Reference : https://www.epilepsy.com/article/2018/4/drug-alert-lamotrigine-and-risk-immune-system-reaction

NOVEL ENZYME THERAPY FOR RARE DISEASE



Phenylketonuria (PKU) is a rare genetic disease that is marked by an inability to metabolize Phenylalanine, an essential amino acid found in most foods that contain protein and in some artificial sweeteners. PKU is characterized by blood phenylalanine (Phe) concentration is greater than 600 µmol/L.

Pegvaliase (Palynziq, BioMarin Pharmaceutical Inc), a PEGylated recombinant phenylalanine ammonia lyase enzyme, is the first approved enzyme substitution therapy to target the underlying cause of PKU by helping the body metabolize Phenylalanine and thereby reducing its content in the blood.

The safety and efficacy of Palynziq were demonstrated in two clinical trials in adult patients with PKU whose blood Phe concentrations were greater 600 µmol/L on current therapy. The first trial was a randomized, open-label trial in patients treated with increasing doses of Palynziq administered by subcutaneous injection to a target dose of either 20 mg or 40 mg once daily. The second trial was an 8-week, placebo-controlled, randomized withdrawal trial in patients who had previously undergone treatment with Palynziq.

According to the FDA, patients treated with Palynziq achieved statistically significant reductions in blood Phe concentrations from their pretreatment baseline concentrations.

The most common adverse events seen with Palynziq treatment were injection site reactions, joint pain, hypersensitivity reactions, headache, and generalized skin reactions lasting at least 14 days, pruritus, nausea, dizziness, abdominal pain, throat pain, fatigue, vomiting, cough, and diarrhea.

Reference : https://www.medscape.com/viewarticle/897246

ADVICE

Apollo HOSPITALS

SITTING IS THE NEW SMOKING

BILLION HEARTS BEATING
CAMPAIGN AGAINST HEART DISEASE

Sitting for 6 hours a day is equal to smoking more than a pack of cigarettes, studies reveal. It can take a toll on the heart by increasing the levels of cholesterol and fat, and the likelihood of type - 2 diabetes.

The good news is that even small amounts of physical activity through the day greatly reduce risks to your heart. Here are a few simple suggestions.

1. Stand up every 20 minutes, even if it's just for a minute or two.
2. Stand whenever you're in a short meeting.
3. Replace long emails with walking one-on-ones.
4. Do simple stretches and exercises at your desk.
5. Head to recreation center for a quick game or workout.

Concept & Credits – Apollo Hospitals

STAFF PUBLICATIONS

1. Aruna Kumar.Ch and Vidyadhara. S."A Kinetic Study for Ex-Vivo Intestinal Glucose Uptake Activity of Methanolic Extract of Canna Indica Flower by Modified Everted Gut Sac Technique". European Journal of Biomedical and Pharmaceutical Sciences. Volume 5, Issue 1 525-528. 2018. ISSN 2349 – 8870.
2. Vijetha. P, Vidyadhara.S, Vineela. S and David Wilson. P. "Pharmacognostic Studies, Evaluation of Ex-Vivo Thrombolytic and Invitro Antioxidant Activities of Leaves of Guaiacum Officinale". World Journal of Pharmaceutical Research. Volume 7, Issue 3, 477-487. 2018. ISSN: 2277 – 7105.
3. Vidyadhara. S, Sandeep. D, Sasidhar RLC, Ramu. A, Mounika. M. "Formulation And Evaluation Of Anti-Inflammatory Cream By Using MoringaOleifera Seed Oil". Pharmacognosy Research. Volume 10 Issue 2. 195-204. 2018. ISSN: 0976-4836.
4. Balakrishna. T, Vidyadhara. S, Murthy. T. E. G. K, Sasidhar. RLC. "Formulation and Evaluation of Lansoprazole Fast Dissolving Buccal Films". Asian Journal of Pharmaceutics, Volume 12 Issue 2, S717 - 724. 2018. ISSN:0973-8398.
5. Sandeep. D, Vidyadhara. S, Siva Krishna. A, Sasidhar. RLC, Ramu. A. "Formulation and Evaluation Of Anti Inflammatory Activity of Lemon Grass Oil Liniments on Wistar Rats". Asian Journal of Pharmacy and Pharmacology 2018; 4(4): 434-439. 2018. ISSN: 2455-2674.

MEDICAL CAMP at CHINNAKONDRUPADU Organized by N.S.S Unit, CHIPS (01/04/2018)

ANNUAL DAY CELEBRATIONS at CHIPS (05-06/04/2018)

ROAD SAFETY AWARENESS by Mr. Ch. VIJAYA RAO (URBAN S.P) at CHIPS (25/04/2018)

NIPER AND PGECET RANKERS

CAMPUS PLACEMENTS Supported by BIOCLINICA & OG HEALTHCARE Organized by CHIPS (12-13/06/2018)

A THREE DAY WORKSHOP ON "CURRENT ASPECTS & ORIENTATION ON PHARMA INDUSTRY" Organized by CHIPS (29-30/06/2018)

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