Infectio®
A quarterly Magazine
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Current News

In Appreciation

The management of SAMI and the editorial board members of *Infectio*® wishes to express the gratitude for the services of **Prof. Badar Jahan Farooqi**. She has been affiliated with *Infectio*® since its launch and played significant role for magazine. Being the Managing Editor of *Infectio*® she managed the magazine with great confidence and looked after microbiological issues of magazine. She has retired from her position due to her illness. We pray for her health and speedy recovery. We benefited from her immense knowledge and expertise as a Clinical Microbiologist and keen interest in imparting information to primary care physician and junior doctors. We felt privileged that she patronized the magazine and we hope that she will join us soon

Infectio®
A quarterly Magazine

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Introduction

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Our products comply with the high standards required by the authorities, institutions and even more importantly by OURSELVES. We have technical collaboration and licensing arrangement with the renowned European Pharmaceutical Manufacturers.

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Message of the Chairman Infectio®

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The response to our previous special edition on Pediatric infectious disease has been tremendously encouraging, we have distributed more than 20,000 copies across Pakistan and more than 8,000 quiz responses have been received. We look forward in continuing to provide you with latest news and information about Infectious Diseases that may be of your interest.

In the last issue we focused topic regarding Pneumonia, Typhoid Fever, Measles, Malaria, Tuberculosis, Infectious Hepatitis (Viral Hepatitis). In Immunization section Prof. Badar Jahan elaborates the role of Clinical Microbiologist in the Management and Control of Pediatric Infectious disease, immunization and its impact in Pakistan Health care system.

The current issue contains articles by leading experts on diagnosis & management of current problems in Pakistan the current edition highlights; emerging viral disease, Zika Virus as a new global threat; Dengue fever and Dengue Hemorrhagic fever, the threats of Swine Flu and its variants, and also draw attention to uncommon but not forgotten problem of Lymphatic Filariasis.

A new feature of "Ask The Experts" will be included in the future edition, the request form is enclosed in the magazine, and the questions will be responded by the leading doctors.

Being the chairman of Infectio® magazine, I would like to acknowledge SAMI Pharmaceuticals (Pvt.) Ltd. For support we welcome Prof. Abdul Gaffar Billoo as a Managing Editor and hope to benefit from his valuable experience and wisdom along with that we welcome all new members of Editorial Board, the new members include; Prof. Karim Kammeruddin, Prof. Haider Shirazi, Prof. Ejaz Ahmed Khan, Prof. Sajid Maqbool & Prof. Dilshad Qureshi

In last I congratulate all winners of special pediatric issue, and acknowledge all participants of quiz who read & got latest information of the special pediatric issue.

I wish this magazine a great success in achieving its aim

Prof. Dr. Ejaz Ahmed Vohra
Chairman/ Head of Project
Dean Post graduate clinical &
Head, Department of Medicine
Dr. Ziauddin University Karachi

Swine flu (H1N1 flu)

Dr. Afsheen Khan
M.B,BS MPhil
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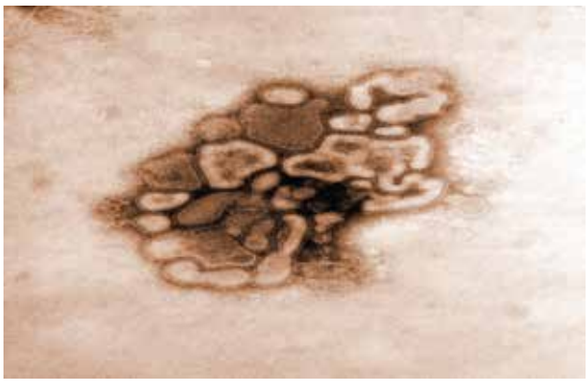

Definition

Technically, the term "swine flu" refers to influenza in pigs. Occasionally, pigs transmit influenza viruses to people, mainly to hog farmers and veterinarians. Less often, someone infected with swine flu passes the infection to others.

The human respiratory infection caused by a particular influenza virus H1N1 strain — popularly known as swine flu — was first recognized in spring 2009. A few months after the first swine flu cases were reported, rates of confirmed H1N1-related illness were increasing in much of the world. As a result, the World Health Organization declared the infection a global pandemic.

The pandemic was declared over in August 2010. Currently, H1N1 is still circulating in humans as a seasonal flu virus and protection against this strain was included in the seasonal flu vaccine for 2015-16. Another strain, H3N2 emerged in humans in 2011.

Symptoms

H1N1 flu signs and symptoms in humans are similar to those of other flu strains:

- Fever (but not always)
- Cough
- Sore throat
- Runny or stuffy nose
- Watery, red eyes
- Body aches
- Headache
- Fatigue
- Diarrhea
- Nausea and vomiting

H1N1 flu symptoms develop about one to three days after you're exposed to the virus.

Causes

Influenza viruses infect the cells lining your nose, throat and lungs. The virus enters your body when you inhale contaminated droplets or transfer live virus from a contaminated surface to your eyes, nose or mouth.

Risk factors

If you've traveled to an area where many people are affected by swine flu (H1N1 flu), you may have been exposed to the virus, particularly if you spent time in large crowds.

Complications

Influenza complications include:

- Worsening of chronic conditions, such as heart disease and asthma
- Pneumonia
- Neurological signs and symptoms, ranging from confusion to seizures
- Respiratory failure

Treatments and drugs

Laboratory testing has found the H1N1 influenza A (swine flu) virus susceptible to the prescription antiviral drugs oseltamivir and zanamivir. Other antiviral agents (eg, amantadine, rimantadine) are not recommended because of recent resistance to other influenza strains documented over the past several years.

The usual vaccine for influenza administered at the beginning of the flu season is not effective for this viral strain. Also, other antiviral agents (eg, amantadine, rimantadine) are not recommended because of recent resistance to other influenza strains documented over the past several years.

Basic supportive care (ie, hydration, analgesics, cough suppressants) should be prescribed. Empiric antiviral treatment should be considered for confirmed, probable, or suspected cases of H1N1 influenza. Treatment of hospitalized patients and patients at higher risk for influenza complications should be prioritized. [1]

High-risk groups are those who:

Are in a hospital, nursing home or other long-term care facility

Are younger than 5 years of age, particularly children younger than 2 years

Are 65 years and older

Are pregnant or within two weeks of delivery, including women who have had pregnancy loss

Are younger than 19 years of age and are receiving long-term aspirin therapy, because of an increased risk of developing Reye's syndrome, a rare but potentially fatal disease that can occur when using aspirin during a viral illness

Are morbidly obese, defined as having a body mass index above 40

Have certain chronic medical conditions, includingasthma, disease, or kidney, liver or blood disease

Are immunosuppressed due to certain medications or HIV

Are American Indians or Native Alaskans

Lifestyle and home remedies

If you develop any type of flu, these measures may help ease your symptoms:

Drink plenty of liquids. Choose water, juice and warm soups to prevent dehydration.

Rest. Get more sleep to help your immune system fight infection.

Consider pain relievers. Use an over-the-counter pain reliever, such as acetaminophen (Tylenol, others) or ibuprofen (Advil, Motrin IB, others), cautiously. Also, use caution when giving aspirin to children or teenagers.

Though aspirin is approved for use in children older than age 3, children and teenagers recovering from chickenpox or flu-like symptoms should never take aspirin. This is because aspirin has been linked to Reye's syndrome, a rare but potentially life-threatening condition, in such children.

Remember, pain relievers may make you more comfortable, but they won't make your symptoms go away faster and may have side effects. Ibuprofen may cause stomach pain, bleeding and ulcers. If taken for a long period or in higher than recommended doses, acetaminophen can be toxic to your liver.

Prevention

The Centers for Disease Control and Prevention recommends flu vaccination for all people older than 6 months of age. An H1N1 virus is one component of the seasonal flu shot for 2014-15. The flu shot also protects against two or three other influenza viruses that are expected to be the most common during the flu season.

The vaccine will be available as an injection or a nasal spray. The nasal spray is approved for use in healthy people 2 through 49 years of age who are not pregnant. The nasal spray isn't recommended for people who are older than 50, younger than 2, pregnant or allergic to eggs, or people who have asthma or a compromised immune system, or those who use aspirin therapy.

These measures also help prevent swine flu (H1N1 flu) and limit its spread:

- **Stay home if you're sick.** If you have swine flu (H1N1flu), you can give it to others. Stay home for at least 24 hours after your fever is gone.
- **Wash your hands thoroughly and frequently.** Use soap and water, or if they're unavailable, use an alcohol-based hand sanitizer.
- **Contain your coughs and sneezes.** Cover your mouth and nose when you sneeze or cough. To avoid contaminating your hands, cough or sneeze into a tissue or the inner crook of your elbow.
- **Avoid contact.** Stay away from crowds if possible. And if you're at high risk of complications from the flu — for example, you're younger than 5 or you're 65 or older, you're pregnant, or you have a chronic medical condition such as asthma — consider avoiding swine barns at seasonal fairs and elsewhere.
- **Reduce exposure within your household.** If a member of your household has swine flu, designate only one household member to be responsible for the ill person's personal care.

Reference
1. http://emedicine.medscape.com/
2. http://www.mayoclinic.org

Zika Virus

Courtesy: WHO

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Key facts

- Zika virus disease is caused by a virus transmitted by Aedes mosquitoes.
- People with Zika virus disease usually have a mild fever, skin rash (exanthema) and conjunctivitis. These symptoms normally last for 2-7 days.
- There is no specific treatment or vaccine currently available.
- The best form of prevention is protection against mosquito bites.
- The virus is known to circulate in Africa, the Americas, Asia and the Pacific.

Introduction

Zika virus is an emerging mosquito-borne virus that was first identified in Uganda in 1947 in rhesus monkeys through a monitoring network of sylvatic yellow fever. It was subsequently identified in humans in 1952 in Uganda and the United Republic of Tanzania. Outbreaks of Zika virus disease have been recorded in Africa, the Americas, Asia and the Pacific.

- Genre: Flavivirus
- Vector: Aedes mosquitoes (which usually bite during the morning and late afternoon/evening hours)
- Reservoir: Unknown

Signs and Symptoms

The incubation period (the time from exposure to symptoms) of Zika virus disease is not clear, but is likely to be a few days. The symptoms are similar to other arbovirus infections such as dengue, and include fever, skin rashes, conjunctivitis, muscle and joint pain, malaise, and headache. These symptoms are usually mild and last for 2-7 days.

During large outbreaks in French Polynesia and Brazil in 2013 and 2015 respectively, national health authorities reported potential neurological and auto-immune complications of Zika virus disease. Recently in Brazil, local health authorities have observed an increase in Zika virus infections in the general public as well as an increase in babies born with microcephaly in northeast Brazil. Agencies investigating the Zika outbreaks are finding an increasing body of evidence about the link between Zika virus and microcephaly. However, more investigation is needed before we understand the relationship between microcephaly in babies and the Zika virus. Other potential causes are also being investigated.

Transmission

Zika virus is transmitted to people through the bite of an infected mosquito from the Aedes genus, mainly Aedes aegypti in tropical regions. This is the same mosquito that transmits dengue, chikungunya and yellow fever.

Zika virus disease outbreaks were reported for the first time from the Pacific in 2007 and 2013 (Yap and French Polynesia, respectively), and in 2015 from the Americas (Brazil and Colombia) and Africa (Cape Verde). In addition, more than 13 countries in the Americas have reported sporadic Zika virus infections indicating rapid geographic expansion of Zika virus.

Diagnosis

Zika virus is diagnosed through PCR (polymerase chain reaction) and virus isolation from blood samples. Diagnosis by serology can be difficult as the virus can cross-react with other flaviviruses such as dengue, West Nile and yellow fever.

Prevention

Mosquitoes and their breeding sites pose a significant risk factor for Zika virus infection. Prevention and control relies on reducing mosquitoes through source reduction (removal and modification of breeding sites) and reducing contact between mosquitoes and people.

This can be done by using insect repellent; wearing clothes (preferably light-coloured) that cover as much of the body as possible; using physical barriers such as screens, closed doors and windows; and sleeping under mosquito nets. It is also important to empty, clean or cover containers that can hold water such as buckets, flower pots or tyres, so that places where mosquitoes can

breed are removed.

Special attention and help should be given to those who may not be able to protect themselves adequately, such as young children, the sick or elderly.

During outbreaks, health authorities may advise that spraying of insecticides be carried out. Insecticides recommended by the WHO Pesticide Evaluation Scheme may also be used as larvicides to treat relatively large water containers.

Travellers should take the basic precautions described above to protect themselves from mosquito bites.

Treatment

Zika virus disease is usually relatively mild and requires no specific treatment. People sick with Zika virus should get plenty of rest, drink enough fluids, and treat pain and fever with common medicines. If symptoms worsen, they should seek medical care and advice. There is currently no vaccine available.

WHO Response

WHO is supporting countries to control Zika virus disease through:

- strengthening surveillance;
- building the capacity of laboratories to detect the virus;
- working with countries to eliminate mosquito populations;
- preparing recommendations for the clinical care and monitoring of persons with Zika virus infection; and
- defining and supporting priority areas of research into Zika virus disease and possible complications.

DENGUE FEVER AND DENGUE HAEMORRHAGIC FEVER

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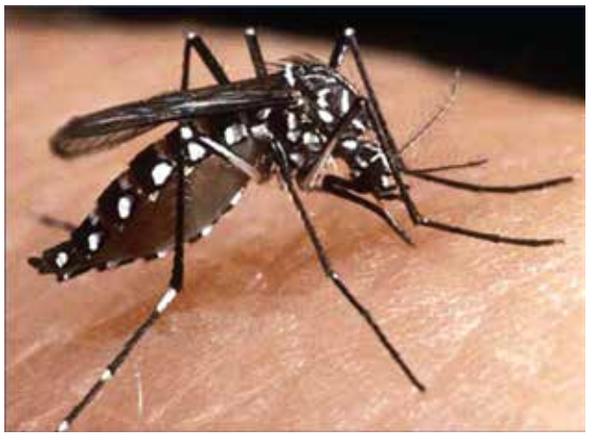


Introduction

Dengue fever (DF) and its severe forms—dengue haemorrhagic fever (DHF) and dengue shock syndrome (DSS)—have become major international public health concerns. Over the past three decades, there has been a dramatic global increase in the frequency of dengue fever (DF), DHF and DSS and their epidemics, with a concomitant increase in disease incidence.

Dengue is found in tropical and subtropical regions around the world, predominantly in urban and semi-urban areas. The disease is caused by a virus belonging to family Flaviviradae that is spread by Aedes (Stegomyia) mosquitoes. There is no specific treatment for dengue, but appropriate medical care frequently saves the lives of patients with the more serious dengue haemorrhagic fever. The most effective way to prevent dengue virus transmission is to combat the disease-carrying mosquitoes.

Dengue and dengue haemorrhagic fever: Key fact

- Some 2.5 billion people – two fifths of the world's population in tropical and subtropical countries – are at risk.
- An estimated 50 million dengue infections occur worldwide annually.
- An estimated 500, 000 people with DHF require hospitalization each year. A very large proportion (approximately 90%) of them are children aged less than five years, and about 2.5% of those affected die.
- Dengue and DHF is endemic in more than 100 countries in the WHO regions of Africa, the Americas, the Eastern Mediterranean, South-East Asia and the Western Pacific. The South-East Asia and Western Pacific regions are the most seriously affected.
- Epidemics of dengue are increasing in frequency. During epidemics, infection rates among those who have not been previously exposed to the virus are often 40% to 50% but can also reach 80% to 90%.
- Seasonal variation is observed.
- Aedes (Stegomyia) aegypti is the primary epidemic vector.
- Primarily an urban disease, dengue and DHF are now spreading to rural areas worldwide.
- Imported cases are common.
- Co-circulation of multiple serotypes/genotypes is evident.

The virus

The dengue viruses form a distinct complex within the genus Flavivirus based on antigenic and biological characteristics. There are four virus serotypes, which are designated as DENV-1, DENV-2, DENV-3 and DENV-4. Infection with any one serotype confers lifelong immunity to that virus serotype. Although all four serotypes are antigenically similar, they are different enough to elicit cross-protection for only a few months after infection by any one of them. Secondary infection with another serotype or multiple infections with different serotypes leads to severe form of dengue (DHF/DSS).

There exists considerable genetic variation within each serotype in the form of phylogenetically distinct "sub-types" or "genotypes". Currently, three sub-types can be identified for DENV-1, six for DENV-2 (one of which is found in non-human primates), four for DENV-3 and four for DENV-4, with another DENV-4 being exclusive to non-human primates.12 Dengue viruses of all four serotypes have been associated with epidemics of dengue fever (with or without DHF) with a varying degree of severity.

Vectors of dengue

Aedes (Stegomyia) aegypti (Ae. aegypti) and Aedes (Stegomyia) albopictus (Ae. albopictus) are the two most important vectors of dengue.

Transmission of DF/DHF

For transmission to occur the female Ae. aegypti must bite an infected human during the viraemic phase of the illness that manifests two days before the onset of fever and lasts 4–5 days after onset of fever. After ingestion of the infected blood meal the virus replicates in the epithelial cell lining of Comprehensive Guidelines for Prevention and Control of Dengue and Dengue Haemorrhagic Fever the midgut and

escapes into haemocoele to infect the salivary glands and finally enters the saliva causing infection during probing. The genital track is also infected and the virus may enter the fully developed eggs at the time of oviposition. The extrinsic incubation period (EIP) lasts from 8 to 12 days and the mosquito remains infected for the rest of its life. The intrinsic incubation period covers five to seven days.

Clinical features

Dengue fever

After an average intrinsic incubation period of 4–6 days (range 3–14 days), various non-specific, constitutional symptoms and headache, backache and general malaise may develop. Typically, the onset of DF is sudden with a sharp rise in temperature and is frequently associated with a flushed face and headache. Occasionally, chills accompany the sudden rise in temperature. Thereafter, there may be retro-orbital pain on eye movement or eye pressure, photophobia, backache, and pain in the muscles and joints/bones. The other common symptoms include anorexia and altered taste sensation, constipation, colicky pain and abdominal tenderness, dragging pains in the inguinal region, sore throat and general depression. These symptoms usually persist from several days to a few weeks. It is noteworthy that these symptoms and signs of DF vary markedly in frequency and severity.

Fever:

The body temperature is usually between 39 °C and 40 °C, and the fever may be biphasic, lasting 5–7 days in the majority of cases.

Rash:

Diffuse flushing or fleeting eruptions may be observed on the face, neck and chest during the first two to three days, and a conspicuous rash that may be maculopapular or rubelliform appears on approximately the third or fourth day. Towards the end of the febrile period or immediately after defervescence, the generalized rash fades and localized clusters of petechiae may appear over the dorsum of the feet, on the legs, and on the hands and arms. This convalescent rash is characterized by confluent petechiae surrounding scattered pale, round areas of normal skin. Skin itching may be observed.

Haemorrhagic manifestations:

Skin haemorrhage may be present as a positive tourniquet test and/or petechiae. Other bleeding such as massive epistaxis, hypermenorrhea and gastrointestinal bleeding rarely occur in DF, complicated with thrombocytopenia.

Course:

The relative duration and severity of DF illness varies between individuals in a given epidemic, as well as from one epidemic to another. Convalescence may be short and uneventful but may also often be prolonged. In adults, it sometimes lasts for several weeks and may be accompanied by pronounced asthenia and depression. Bradycardia is common during convalescene. Haemorrhagic complications, such as epistaxis, gingival bleeding, gastrointestinal bleeding, haematuria and hypermenorrhoea, are unusual in DF. Although rare, such severe bleeding (DF with unusual haemorrhage) are an important cause of death in DF.

Dengue fever with haemorrhagic manifestations must be differentiated from dengue haemorrhagic fever.

Criteria for clinical diagnosis of DHF/DSS

Clinical manifestations

- Fever: acute onset, high and continuous, lasting two to seven days in most cases.
- Any of the following haemorrhagic manifestations including a positive tourniquet test (the most common), petechiae, purpura (at venepuncture sites), ecchymosis, epistaxis, gum bleeding, and haematemesis and/or melena.
- Enlargement of the liver (hepatomegaly) is observed at some stage of the illness in 90%–98% of children. The frequency varies with time and/or the observer.
- Shock, manifested by tachycardia, poor tissue perfusion with weak pulse and narrowed pulse pressure (20 mmHg or less) or hypotension with the presence of cold, clammy skin and/or restlessness.

Laboratory findings

- Thrombocytopenia (100, 000 cells per mm3 or less).
- Haemoconcentration; haematocrit increase of ≥20% from the baseline of patient or population of the same age.

The first two clinical criteria, plus thrombocytopenia and haemoconcentration or a rising haematocrit, are sufficient to establish a clinical diagnosis of DHF. The presence of liver enlargement in addition to the first two clinical criteria is suggestive of DHF before the onset of plasma leakage.

The presence of pleural effusion (chest X-ray or ultrasound) is the most objective evidence of plasma leakage while hypoalbuminaemia provides supporting evidence. This is particularly useful for diagnosis of DHF in the following patients:

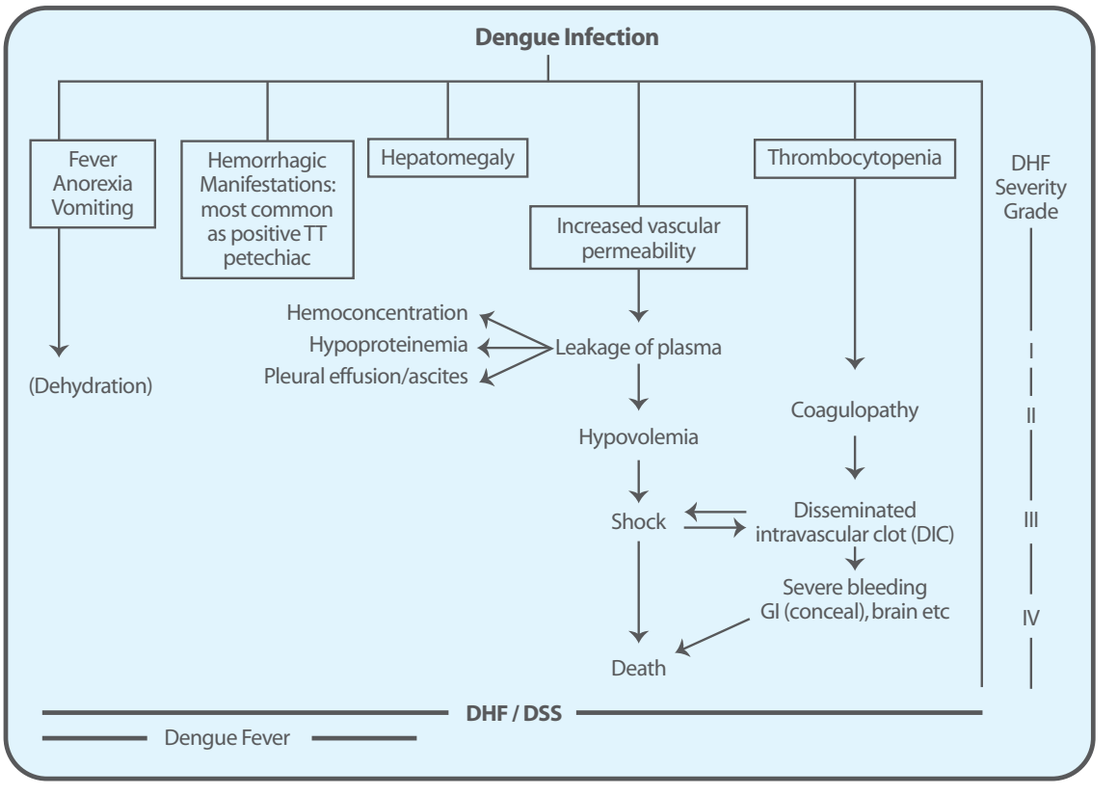
- Anaemia.
- Severe haemorrhage.

- Where there is no baseline haematocrit.
- Rise in haematocrit to <20% because of early intravenous therapy.

In cases with shock, a high haematocrit and marked thrombocytopenia support the diagnosis of DSS. A low ESR (<10 mm/first hour) during shock differentiates DSS from septic shock.

The clinical and laboratory findings associated with the various grades of severity of DHF are shown in Box 7.

Box 7: Major manifestations/pathophysiological change of DHF

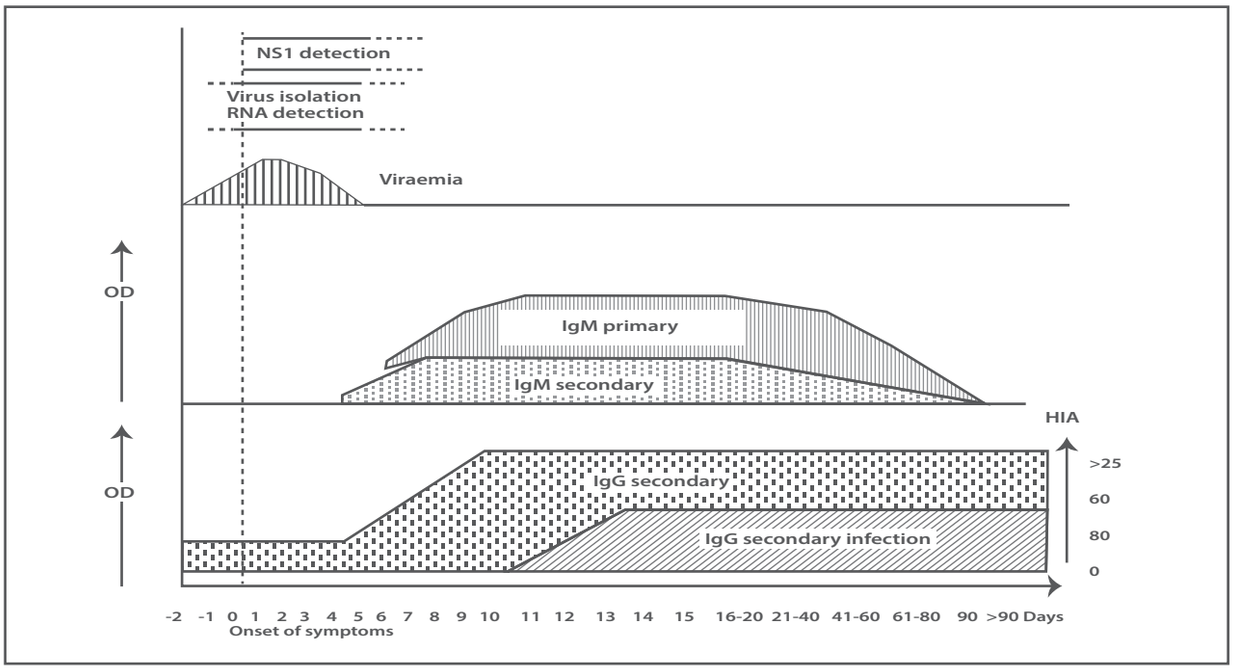


Laboratory Diagnosis

The following laboratory tests are available to diagnose dengue fever and DHF:

- Virus isolation
  - serotypic/genotypic characterization
- Viral nucleic acid detection
- Viral antigen detection
- Immunological response based tests
  - IgM and IgG antibody assays
- Analysis for haematological parameters

Figure 5: Approximate timeline of primary and secondary dengue virus infections and the diagnostic methods that can be used to detect infection



Source: WHO. Dengue Guidelines Diagnosis, Treatment, Prevention and Control, New edition, 2009. WHO Geneva

Threatment

Dengue fever is usually a self-limited illness. There is no specific antiviral treatment currently available for dengue fever.

Supportive care with analgesics, fluid replacement, and bed rest is usually sufficient. Acetaminophen may be used to treat fever and relieve other symptoms. Aspirin, nonsteroidal anti-inflammatory drugs (NSAIDs), and corticosteroids should be avoided. Management of severe dengue requires careful attention to fluid management and proactive treatment of hemorrhage.

Single-dose methylprednisolone showed no mortality benefit in the treatment of dengue shock syndrome in a prospective, randomized, double-blind, placebo-controlled trial.

PREVENTION

Environmental modification

- Improved water supply
- Mosquito-proofing of overhead tanks/cisterns or underground reservoirs
- Filling, land levelling and transformation of impoundment margins
- Draining water supply installations
- Covering domestic water-storage containers
- Cleaning flowerpots/vases and ant-traps
- Cleaning incidental water collections
- Managing construction sites and building exteriors
- Managing mandatory water storage for fire-fighting
- Managing discarded receptacles
- Managing glass bottles and cans
- Tyre management

- Used automobile tyres are of significant importance as breeding sites for urban Aedes, and are therefore a public health problem. Imported used tyres are believed to be responsible for the introduction of Ae. albopictus into the United States of America, Europe and Africa. Tyres indepots should always be kept under cover to prevent collection of rainwater.

Personal protection

- Protective clothing
- Mats, coils and aerosols
- Repellents
- Insecticide-treated materials: Mosquito nets and curtains

Biological control

- **Fish**

Larvivorus fish (Gambusia affinis and Poecilia reticulata) have been extensively used for the control of An. stephensi and/or Ae. aegypti in large waterbodies or large water containers in many countries in South-East Asia (for example, the community-based use of larvivorous fish Poecilia reticulata to control the dengue vector Ae. aegypti in domestic water-storage containers in rural Cambodia)

- **Bacteria**

Two species of endotoxin-producing bacteria, Bacillus thuringiensis serotype H-14 (Bt.H-14) and Bacillus sphaericus (Bs), are effective mosquito control agents.

Chemical control

- Protective clothing
- Mats, coils and aerosols
- Repellents
- Insecticide-treated materials: Mosquito nets and curtains

TAKE THESE SIMPLE ACTIONS

- Don't ask for antibiotics; treat your cold and flu symptoms with pharmacist advice and over the counter medicines.
- Take antibiotic exactly as prescribed, never save them for later, never share them with others
- Spread the word; tell your friends and family about antibiotic resistance
- Antibiotic resistance is a major threat; misuse of antibiotics can lead to resistance and treatment becomes ineffective

Lymphatic Filariasis

Prof. A.G.Billoo. (Sitara-e-Imtiaz)

Infectio®

Introduction

- More than 1.3 billion people in 72 countries worldwide are threatened by lymphatic filariasis, commonly known as elephantiasis.
- Over 120 million people are currently infected, with about 40 million disfigured and incapacitated by the disease.
- Lymphatic filariasis can result in an altered lymphatic system and the abnormal enlargement of body parts, causing pain and severe disability.
- Acute episodes of local inflammation involving the skin, lymph nodes and lymphatic vessels often accompany chronic lymphedema.
- To interrupt transmission WHO recommends an annual mass drug administration of single doses of two medicines to all eligible people in endemic areas.

The disease

Lymphatic filariasis, commonly known as elephantiasis, is a neglected tropical disease. Infection occurs when filarial parasites are transmitted to humans through mosquitoes. When a mosquito with infective stage larvae bites a person, the parasites are deposited on the person's skin from where they enter the body. The larvae then migrate to the lymphatic vessels where they develop into adult worms in the human lymphatic system.

Infection is usually acquired in childhood, but the painful and profoundly disfiguring visible manifestations of the disease occur later in life. Whereas acute episodes of the disease cause temporary disability, lymphatic filariasis leads to permanent disability.

Currently, more than 1.3 billion people in 72 countries are at risk. Approximately 65% of those infected live in the WHO South-East Asia Region, 30% in the African Region, and the remainder in other tropical areas.

Lymphatic filariasis afflicts over 25 million men with genital disease and over 15 million people with lymphedema. Since the prevalence and intensity of infection are linked to poverty, its elimination can contribute to achieving the United Nations Millennium Development Goals.

Cause and transmission

Lymphatic filariasis is caused by infection with nematodes (roundworms) of the family Filariodidea. There are three types of these thread-like filarial worms:

- Wuchereria bancrofti, which is responsible for 90% of the cases
- Brugia malayi, which causes most of the remainder of the cases
- B. timori, which also causes the diseases.

Adult worms lodge in the lymphatic system and disrupt the immune system. They live for 6-8 years and, during their life time, produce millions of microfilariae (small larvae) that circulate in the blood.

Lymphatic filariasis is transmitted by different types of mosquitoes for example by the Culex mosquito, widespread across urban and semi-urban areas; Anopheles mainly in rural areas, and Aedes, mainly in endemic islands in the Pacific.

Clinical features

Lymphatic filariasis infection involves asymptomatic, acute, and chronic conditions. The majority of infections are asymptomatic, showing no external signs of infection. These asymptomatic infections still cause damage to the lymphatic system and the kidneys as well as alter the body's immune system.

Acute episodes of local inflammation involving skin, lymph nodes and lymphatic vessels often accompany the chronic lymphedema or elephantiasis. Some of these episodes are caused by the body's immune response to the parasite. However most are the result of bacterial skin infection where normal defenses have been partially lost due to underlying lymphatic damage.

When lymphatic filariasis develops into chronic conditions, it leads to lymphoedema (tissue swelling) or elephantiasis (skin/tissue thickening) of limbs and hydrocele (fluid accumulation). Involvement of breasts and genital organs is common.

Such body deformities lead to social stigma, as well as financial hardship from loss of income and increased medical expenses. The socioeconomic burdens of isolation and poverty are immense.

DIAGNOSIS

The standard for diagnosis is microscopic detection of microfilariae on a thick blood film. In most endemic areas, the highest concentration of microfilariae in the peripheral blood occurs at night; therefore, blood specimens should be collected between 10 PM and 2 AM. Determination of serum antifilarial IgG is also a diagnostically useful test. This assay is available through the Parasitic Diseases Laboratory at the National Institutes of Health or through CDC's Division of Parasitic Diseases and Malaria.

Treatment and prevention

The recommended regimen for treatment through mass drug administration (MDA) is a single dose of two medicines given together - albendazole (400 mg) plus either ivermectin (150-200 mcg/kg) in areas where onchocerciasis (river blindness) is also endemic or diethylcarbamazine citrate (DEC) (6 mg/kg) in areas where onchocerciasis is not endemic. These medicines clear microfilariae from the bloodstream and kill most of the adult worms.

Mosquito control is another measure that can be used to suppress transmission. Measures such as insecticide-treated nets or indoor residual spraying may help protect populations in endemic regions from infection.

Patients with chronic disabilities like elephantiasis, lymphedema, or hydrocoele are advised to maintain rigorous hygiene and take necessary precautions to prevent secondary infection and aggravation of the disease condition.

World Health Assembly Resolution 50.29 encourages Member States to eliminate lymphatic filariasis as a public-health problem.

In response, WHO launched its Global Programme to Eliminate Lymphatic Filariasis (GPELF) in 2000. The goal of the GPELF is to eliminate lymphatic filariasis as a public-health problem by 2020.

The strategy is based on two key components:

- interrupting transmission through annual large-scale treatment programmes, known as mass drug administration, implemented to cover the entire at-risk population;
- alleviating the suffering caused by lymphatic filariasis through morbidity management and disability prevention.

Mass drug administration (MDA)

To achieve interruption of transmission first the disease is mapped to know where to administer MDA then community-wide annual MDA of single doses of albendazole plus either diethylcarbamazine or ivermectin is implemented in endemic regions, treating the entire at-risk population.

MDA should be continued for 4-6 years to fully interrupt transmission of infection. By 2010, 59 endemic countries had completed mapping, and 53 countries had started implementing MDA. Of the 53 countries that had implemented MDA, 37 had already completed five or more rounds of MDA in at least some of their endemic areas.

From 2000 to 2010, more than 3.4 billion treatments were delivered to a targeted population of about 900 million individuals in 53 countries, considerably reducing transmission in many places. Recent research data show that the transmission of lymphatic filariasis in at-risk populations has dropped by 43% since the beginning of the GPELF. The overall economic benefit of the program during 2000-2007 is conservatively estimated at US$ 24 billion.

Management of disability

Morbidity management and disability prevention are vital for public health improvement and should be fully integrated into the health system. The GPELF focuses on training health-care workers and communities to dispense proper care and treatment.

Clinical severity of lymphedema and acute inflammatory episodes can be improved using simple measures of hygiene, skin care, exercise, and elevation of affected limbs. Hydrocele (fluid accumulation) can be cured with surgery.

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Face to Face with Prof. Dr. Dilshad Qureshi

MCPS, FCPS (Pediatrics)
Professor of Pediatrics
Sandeman Provincial Teaching Hospital Quetta
Interviewed by: Dr. Muhammad Salman

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A doctor is someone who maintains or restores human health through the practice of medicine. He or she will diagnose and treat human disease, ailments, injuries, pain or other conditions. A doctor can be found in several settings, including public health organizations, teaching facilities, private practices, group practices and hospitals.

Prof. Dilshad Qureshi is the head of Pediatrics at Sandeman Provincial Training Hospital, Quetta. She did her M.B.B.S from Fatima Jinnah Medical College, Lahore. Then she served as a medical officer for Health Department in Baluchistan. Later on, she had her MCPS in Peads from College of Physicians and Surgeons and worked at Shaikh Zayed Hospital, Lahore. Prof. Dilshad Qureshi is the first FCPS Female (Pediatrician) Professor and head of unit in Baluchistan. During interview, Prof. Dilshad shared her experiences and highlight different aspects of Pediatric illnesses

Q# 1. Please share details about your education & professional experience

A: My pre medical education is from Govt. Girls College Quetta. Then I joined Fatima Jinnah Medical College Lahore and graduated as a good medical student serving two years as medical officer in Health Department of Govt. of Balochistan. I did my membership in Paeds from college of physicians and surgeons while working as post graduate student in Shaikh Zayed Teaching Hospital Lahore. After getting fellowship I came back to Quetta, after post of Assistant and Associate Professor now I am working as a Professor and Head of Dept. of Paeds in Unit IV in Sandeman Provincial Teaching Hospital Quetta. In evening I do my consultation and looking after N.I.C.U with my skills and knowledge in Children Hospital Quetta which is a center of excellence

Q# 2. Why did you choose this career/ field of medicine and your major initiatives in this field?

A: In Medical Profession if you are honest in your job it is a gate way to get near to Almighty ALLAH because you are doing a great service to humanity, especially the innocent sick children who cannot give you a clue of their sickness and an expert Pediatrician digs it out. Children are the dearest and expensive treasure of parents whether poor or rich the feelings are the same. My choice is for neonates and to understand their problems is a great art but with the grace of ALLAH s.w.t I am doing a great service in this field which is highly appreciated and recognized

Q# 3. Why did you think of taking pediatric as a profession?

A: A female can better understand the problems of the children whether physical or medical than male. Moreover, from my childhood I loved children and made up my mind to become doctor of children. I am the first FCPS Female (Pediatrician) Professor and head of unit in Baluchistan

Q# 4. How did you feel when you received your doctoral degree?

A: My Dreams become true

Q# 5. What are the main challenges of field of medicine?

A: Life is full of challenges and this profession also has many challenges especially neonatal mortality and morbidity in Pakistan. We have to reduce it. Infectious diseases are also a challenge to treat due to which Polio, Tetanus and Diphtheria are still present in Pakistan

Q# 6. What are the most common pediatric diseases in Pakistan?

A: Pakistan is a country where many diseases are still prevailing while in most of the countries these diseases have been eradicated, may be due to limited resources available. Common diseases in Pakistan especially in middle and lower class children are; Diarrhea, Pneumonia, Whooping Cough, Typhoid and Meningitis however, Birth Asphyxia, Prematurity and Sepsis are common in neonates

Q# 7. Polio is still a main challenge for Pakistan. Can children who have already been polio vaccinated have chances of getting polio?

A: Polio no doubt is the alarming disease in Pakistan and there are few countries in the world where polio is still a great problem and Pakistan is one of them

Reason:

- No proper immunization
- No care of vaccine
- Illiteracy
- Corruption

Reluctant to give polio drops to their children. Some cases have been reported where polio drops were given several time but the child developed polio. The reasons better known to the respective polio dept.

Q# 8. What is the happiest moment being a doctor in your life?

A: when a very serious patient survives with pray to almighty ALLAH and my skilled and enduring efforts

Q# 9. If you were not a doctor then what would you have been?

A: success for children health. This is the only way we can make a significant difference in the health and welfare of children.

Q# 10. How do you keep balance in organizing time for your professional & personal commitments?

A: I am more concerned about my profession than personal commitments but whenever I get time I enjoy my life with my family members and my close friends in outing, enjoying good food and poetry

Q# 11. Who are your inspiration/ role model?

A: My mother and my honorable teacher Prof. Sajid Maqbool.

Q# 12. How would you like to advise or guide newcomers in this profession?

A: Honestly hard work and taking sick children as their own

Q# 13. Any message for betterment of magazine or this initiative?

A: Everyone in this world need betterment you are the best judge of your magazine and can get lot of new things from very learned person. I found it very effective and knowledgeable and hope to be more effective in future

Quiz & Winners of Lucky Draw

Reported by: Dr. Nabeel Khan

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Q1: Treatment of H1N1 includes all of the following except

a) Drinking of plenty of fluid
b) Antibiotics
c) Rest
d) Pain Relieving Agents

Q2: Zika virus disease is caused by a virus transmitted by: _____

a) Anopheles Mosquito
b) Culicinae Mosquito
c) Aedes Mosquito

Winners of Lucky Draw

The editorial board of Infectio magazine is pleased to announce the names of winners for quiz from the fourth special issue. The lucky draw was held in a clinical meeting at Dr. Zia uddin University hospital, Karachi on **31st March 2016**. Following are the names of lucky draw winners drawn at randomly by Prof. Ejaz Ahmed Vohra and his team.

We congratulate the winners and once again thank all contestants for their participation in quiz

1. **Dr. Anum Tahir, DHQ Hospital, Sialkot**
2. **Dr. Arshad Amin, Swabi medical Centre, Swabi**
3. **Dr. Taj Lashari, DHQ Hospital, Narowal**
4. **Dr. M Haroon, Bajwa Hospital, Lahore**
5. **Dr. Shamser Ali Khan, NICH, Karachi**
6. **Dr. Amna Musthaq, PIMS Children Hospital, Islamabad**
7. **Dr. Maria Malkani, Paeds Unit-II, Civil Hopsital, Hyderabad**
8. **Dr. Munawar, Jinnah Hospital Surgical-3, Lahore**
9. **Dr. Muneer Ahmed, Akram Hospital, Quetta**
10. **Dr. Talha Muhammad Khan, Civil Hospital, Mansehra**

Ask The Experts

Infectious diseases kill more people worldwide than any other single cause. Diagnosis of infectious diseases are nearly always initiated by medical history and physical examination followed by laboratory reports

Some infectious diseases can spread from person to person; some are transmitted by insects' bites or animals while other are acquired by ingesting contaminated food or water or being exposed to organisms in the environment. Timely identification of a disease ensures proper treatment and avoidance of any kind of complications associated with the disease

It has been observed that doctors face different types of complex cases on daily basis. In order to help them we have taken an initiative to introduce **Ask The Experts** service in which you can enquire any type of case (communicable or non-communicable) faced during the daily practice. Editorial Board will respond to all queries but only selected cases will be published in the next edition of *Infectio*® which will serve to be beneficial for the medical community

Dr. Name	
Contact Number	
Email	
Clinic Address	
City	

Note: *Selection of case will totally depend upon the editorial board. Kindly fill the form and hand it over to the representative of SAMI Pharmaceuticals.*