IJNRD.ORG ISSN : 2456-4184
INTERNATIONAL JOURNAL OF NOVEL RESEARCH AND DEVELOPMENT (IJNRD) | IJNRD.ORG
An International Open Access, Peer-reviewed, Refereed Journal

DENGUE AND IT'S TREATMENT APPROACH IN HOMOEOPATHY

Dr Pradeep Kumar Jha, Dr Satya Prakash

Associate Professor, MD (Homoeopathy)

UCH JODHPUR, Scholar

INTRODUCTION

Dengue is the most important emerging tropical arthropod borne viral disease of humans in the world today. Over the last 10-15 yrs DF & its severe manifestations such as DHF & DSS has become leading cause of hospitalization & death among children in the south east Asia region of WHO, following diarrheal diseases & acute respiratory infections.

- DHF was first described in 1953 when it struck Philippines.
- An outbreak of DHF occurred in Delhi & neighboring cities in 1996 claiming several lives. In 1997 too, some cases of DHF had been reported in post monsoon period in Delhi.
- A pandemic in 1998 in which 1.2 million cases of DF & DHF were reported from 56 countries.

DEFINITION

The word Dengue is derived from African word "Denga" meaning fever with haemorrhages.

It is an acute viral infection with biphasic febrile episode, severe headache, myalgia & morbilliform rash caused by dengue virus (Flavivirus;Togavirus)

EPIDEMIOLOGY

The disease is now endemic in more than 100 countries in Africa, the Americas, the Eastern Mediterranean, South-east Asia and the Western Pacific. South-east Asia and the Western Pacific are most seriously affected. Some 2500 million people - two fifths of the world's population - are now at risk from dengue. WHO currently estimates there may be 50 million cases of dengue infection worldwide every year.

AETIOLOGY

- Dengue virus (4 serotypes, Flavivirus eg.DEN1,DEN2,DEN3 & DEN4)
- The causative virus is usually harboured by female mosquito Aedes Aegypti & transmitted to men during day bite.
- Incubation Period: 3-15days(average 7 to 10 days)

TRANSMISSION

- Virus is transmitted by day-time biting of Aedes Aegypti
- Humans are infective during the first 3 days of the illness (the viraemic stage)
- Mosquitoes become infective about 2 weeks after feeding on an infected individual & remain so for the rest of their lives.

COURSE

- **DF/DHF** has an unpredictable course.
- Most of the patients have a febrile phase lasting 2 to 7 days.
- This is followed by a critical phase which is of about 2-3 days in which patient is afebrile, with a risk of developing DHF/DSS which may prove fatal if prompt and appropriate treatment is not provided.
- Sometimes there may be prolonged convalescence with muscular weakness & personality changes (depression).

PATHOGENESIS OF DHF & DSS

- DHF & DSS occurs in persons who were infected with one serotypes of dengue virus previously & therefore have antibodies against that particular serotype.

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- A second infection by a different serotype causes immunologic enhancement of antibody acquired from previous infection.

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- Antibody-virus complex taken up by macrophages.
- Production of vascular permeability factors by macrophages.
- These vascular permeability factors induce plasma leakage.

⇩ Resulting in

DENGUE HAEMORRHAGIC FEVER (DHF)

⇩ Ultimately

DENGUE SHOCK SYNDROME (DSS)

CLINICAL FEATURES

All four dengue virus (DEN 1, 2, 3&4) infections may be asymptomatic or symptomatic which are as follows:

1) ASYMPTOMATIC

2) **SYMPTOMATIC** : ***a) Undifferentiated Fever (Viral Symptoms)***

b) Dengue fever (syndrome)

- Without Haemorrhage
- With Unusual Haemorrhage

c) Dengue Haemorrhagic Fever (DHF)

- No shock
- DSS

CLINICAL FAETURES CAN BE FURTHER DIVIDED INTO FIVE STAGES:

a)**Prodromal stage:** Two days associated with malaise & headache.

b)**Acute Onset:** These are associated with Fever, Backache, Arthalgia, headache, generalised pains (breakbone fever),pain on eye movement, lachrymation, anorexia, nausea, vomiting, relative bradycardia, prostration, depression, lymphadenopathy, sclera infection.

c)**Fever**: Continuous or "saddle back" type with break on fever on fourth or fifth day usually lasts 7-8 days.

d)**Rash**: Transient macular in first 1-2 days; Maculo-papular scarlet morbilliform from 3-5 days on trunk spreading centrifugally sparing palms & soles .May desquamate on resolution.

e)**Convalescence**: Slow

WHO CRITERIA FOR DIAGNOSIS OF DHF:

Characterised by fever (lasting 2-7 days) with haemorrhagic tendencies (1 or more of following)

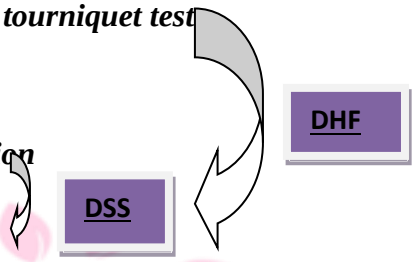
- Positive Tourniquet Test
- Petechiae, ecchymosis or purpura
- Bleeding from mucosa, infection sites or other sites
- Haematemesis or malena
- Thrombocytopenia
- Evidence of plasma leakage due to increased capillary permeability:-
  - >20% rise in haematocrit for age & sex
  - >20% drop in haematocrit following fluids compared to baseline
  - Signs of plasma leakage(pleural effusion, ascites or hypoproteinaemia)

WHO CRITERIA FOR DIAGNOSIS OF DSS

- Rapid ,weak pulse with narrowing of pulse pressure(<20 mm of Hg) or hypotension with cold,clammy skin & restlessness.

WHO CLINICAL CLASSIFICATION:

GRADE	**CLINICAL FEATURES**
Grade 1	***Fever, constitutional symptoms, +ve tourniquet test***
Grade 11	***Grade 1 + spontaneous bleeding***
Grade 111	***Grade 1 + circulatory failure, agitation***
Grade 1v	***Grade 111 + profound shock***



INVESTIGATION OR LABORATORY FINDINGS (DIAGNOSIS)

- Leucopoenia with toxic granulation of polymorphs constant features.
- Thrombocytopenia may also develop.
- Urine contains albumin
- Complement fixation test may be positive.
- Virus may be recovered in acute phase of the disease from blood.
- ELISA test or Antibody capture ELISA may be positive.
- Haemoconcentration is present particularly in DHF & DSS.
- Immunohistochemistry for detection of antigen also be done from tissue.
- X-Ray chest showing bilateral pleural effusion.
- Deranged liver function tests(elevated transaminases, hypoalbuminaemia, reversed A:G ratio)
- Prolonged coagulation tests (PT time, activated partial thromboplastin time & thrombin time).

AT AUTOPSY THE PREDOMINANT ORGAN CHANGES OBSERVED ARE AS FOLLOWS:

- **Brain***:* Intracranial haemorrhages, cerebral oedema, encephalitis.
- **Liver:** Enlarged, necrosis of hepatocytes & kuffer cell; Reye's syndrome in children.
- **Kidneys:** Petechial haemorrhages & features of renal failure.
- **Muscles & joints:** Perivascular mononuclear cell infiltration

TREATMENT & MANAGEMENT

Treatment of DHF & DSS is entirely symptomatic with:

- Fluid Replacement
- Blood Transfusions
- Platelet rich plasma infusion(in some cases)

Treatment is supportive- includes

- Intensive monitoring of vital sign & haematocrit.
- If sign of shock appear –prompt replacement of plasma volume & correction of metabolic acidosis
- After 1-2 days ,the capillary leakage ceases and resorption of extravasated fluid begins
- Care must be taken not to induce pulmonary oedema by excessive intravenous fluids.

APPROACH OF TREATMENT IN HOMOEOPATHY:

A) **According to Master Samuel Hahnemann** dengue is sporadic & epidemic disease & its treatment is mentioned in aphorism 100,101,102 of Oganon of Medicine 5th & 6th edition.

B) **Approach of treatment in some clinical repertories**:

1) ***Clark Prescriber*** :(The Prescriber by J.H.CLARKE M.D)
   - First Paroxysm: Acon is followed if necessary by Rhus
   - If bone pains very severe Eupt.Perf
   - Flushed face, rash, pains in head & eyes, low fever, drowsiness: EchinQ gtt very 2 hrs
   - Second Paroxysm: Gels followed if necessary by Rhus

2) ***Clark Clinical Repertory***.(Clinical Repertory to the Dictionary of Materia Medica by J.H.Clarke M.D)
   - Dengue fever: Acon, Eupat, Gels, Rhus

3) ***Boricke's Materia Medica with Repertory***(G.Boricke's)
   - Italics: Acon,Eup per,Gel,Rhus-t
   - Roman: Ars,Bell,Bry,Canth,Cinch,Ipec,Nux-v,Rhus.v

4) ***Black Wood Materia Medica***
   - Eupt per,Rhus-tE)

5) ***Lilianthal*** (Homoeopathic Therapeutics by Samuel Lilienthal)
   - In First Stage:Acon & Bry
   - With Ipec for vomiting
   - Ars for Diarrhoea
   - When Eruption is out on the skin:Bry or Rhus-t
   - Gastric Symptoms:Colocy,Nux-v
   - Jaundice:Chin,Eup,Merc,Nux-v,Pod
   - Haemorrhagic Conditions:Ars,Chin,Fer,Ham,Sec,Sulp.ac
   - Renal Haemorrhage:Ars,Bell,Canth

6) ***The Principles And Practice of Homoeopathy by Richard Hughes***
   - Aconite in the first paroxysm as the fundamental remedy
   - When dengue invaded America in 1827 it was known as the "Break-bone fever" & Eupa.per was found most beneficial in relieving pains.
   - In the Second Paroxysm Gelsemium would take the place of Aconite.
   - The symptoms of skin & mucous membrane would call for rhus preferably I think in the venerate variety.

7) Systematic Materia Medica by Dr.K.N.Mathur
   - Eupt.per is a almost specific remedy for dengue fever.

8) ***BBCR Repertory***
   - **Fever-Pathological types**:
     i) First grade : Eup per,Bap(Capital)

ii) Second grade: Gels,Rhus-t(Bold)
iii) Third garade: Ars(Italics)
iv) Fourth grade: Aru-t,Caus,Ter-p,Merc,Sul(Roman)

- **Heat & Fever in General-Concomitants**

i) Depression:-Con(Bold) ;Chin,Sul,(Italic);

SIGN OF RECOVERY

- Stable pulse, Blood Pressure & breathing rate
- Normal Temperature
- No evidence of external or internal bleeding
- Return of appetite
- No vomiting
- Good urinary output
- Stable haematocrit
- Convalescent confluent petechiae rash.

CRITERIA FOR DISCHARGING PATIENTS

- Absence of fever for at least 24 hrs without the use of anti fever therapy.
- Return of appetite.
- Visible clinical improvement
- Good urine output
- Minimum of three days after recovery from shock
- No respiratory distress from pleural effusion & no ascites.
- Platelet count of more than 50,000/mm3

COMPLICATIONS

- Haemorrhages under skin & mucous membrane(Haemorrhagic Dengue-DHF)
- Otitis media, bronchopneumonia, pneumonia.
- Herpes labialis
- Jaundice in rare case & hepatitis.
- Orchitis
- Oophoritis
- Depression
- Shock & collapse
- Bone marrow aplasia
- Reye's syndrome
- Fall of hair
- Encephalitis & transverse myelitis
- Chronic fatigue

PROGNOSIS

1) Fatalities are rare but do occur ,especially during epidemic outbreaks, with occasional patients dying from fulminant hepatitis.

2) Convalescence for most patients is slow.

DIFFERENTIAL DIAGNOSIS

D/D during the acute phases of illness includes:

- Influenza
- *Measles*
- *Rubella*
- *Typhoid*
- *Leptospirosis*
- *Rickettsia*
- *Malaria*
- *Other arboviral infections with rash*

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