Damning Dengue

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No related financial interests
Dengue fever: caused by a *Flavivirus* and transmitted by a *mosquito*

Fastest spreading tropical disease +++

Virtually unknown before WW II

*World War II*  
*1939 - 1945*

Today:

>120 countries

200 million infections/year - 22,000 deaths
**Aedes aegypti**: 4 virus serotypes (DENV1-4)
Co-infection is possible

Primary infection:
- usually mild,
- often asymptomatic

Lifetime immunity for that serotype

The problem – caused by re-infection
- due to a different serotype
- can be severe, lifethreatening
Who should be suspected?

Exposed patients (endemic area, travellers), <14 days

Fever, Rash, Arthralgia, Nausea, Cephalalgia, Easy Bleeding (FRANCE)

Thrombocytopenia

Positive tourniquet’s sign (Kandan, 2014)
Clinical manifestations

Asymptomatic in 50-70%

Dengue fever

Neurological manifestations (1-20%) = severe dengue (WHO 2009)

Dengue hemorrhagic fever

Dengue shock syndrome
Confirmatory tests

Day 5 of fever

- Viral antigen detection
  - NS1 antigen
- Viral RNA detection (RT-PCR)
- IgM, IgG (ELISA)
  - IgM/IgG <1.2 means reinfection
- Viral culture

For rapid diagnosis

- Kit for viral Ag and IgM – 10min, 20USD
Treatment is non-specific

- Supportive, rehydration
- ICU/transfusion in critical cases
- Avoidance of NSAID, Aspirin, Anticoagulation
- Steroids in immune-mediated disease
- Prophylaxis, against mosquitoes
Neurological manifestations in dengue fever (DENV1-2)

1/ Neurotropism?
   \[ \text{ENCEPHALITIS, (MENINGITIS)} \]

2/ Metabolic changes:
   \[ \text{ENCEPHALOPATHY} \]

3/ Autoimmune reactions:
   \[ \text{ON, TM, ADEM, NMOSD, GBS, Myositis} \]

4/ Cerebrovascular events:
   \[ \text{STROKE, SINUS THROMBOSIS} \]
Dengue encephalopathy:

- Most common neurological complication in Dengue

- More often in children

- Cognitive dysfunction, convulsions, behavioral disorders

- Often associated with metabolic, multi-organ (hepatic) dysfunction, cerebral edema, anoxia, prolonged shock

- CSF is often normal, but abnormal MRI

- 50% mortality
Other neurological manifestations in Dengue

PRESS syndrome
Garg et al, 2017

Myelitis
Lana-Peixotot et al, 2018

NMOSD
Lana-Peixotot et al, 2018
The Ophthalmologist’s point of view:

- Dengue Maculopathy (10-40% of admitted patients)
- Retinal vasculitis, retinal hemorrhages, uveitis
- Optic neuritis

Courtesy Dr V Lal
The Controversy

- Dengvaxia (Sanofi) – first anti dengue tetravalent vaccine

- Licensed in 19 countries – for use in endemic areas, age 9-45

- Stopped in Dec 2017 in the Philippines after 800,000 vaccinations

- Associated with severe dengue in vaccinated seronegative patients

REUTERS

PHILIPPINE LAWYERS Sue SANOFI Over Dengue Vaccine
In conclusion

- Think « Dengue » in travellers, if fever and thrombocytopenia

- Monitor neurological, neuro-ophthalmic involvement

- Most important: prophylaxis!!!