Zika and Sickle Cell Disease

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What’s Known about Zika Virus (ZIKV)

- Family: Flaviviridae Genus: Flavirivirus
- Single stranded positive RNA genome
- “Usual” symptoms: febrile illness, exanthem, arthralgia's; not fatal
- Reports of Guillain-Barré
- 618 U.S. cases (195 in pregnancy)
Rare Fatal Zika Virus Infection

- 15 year old from Columbia with SC for “5 years”
- Four days of fever > 40°C, arthalgias, retro-ocular pain, abdominal pain, myalgias, and jaundice
- Tachycardic, tachypneic, but no elevated WBC, no lymphadenopathy, no rash, no petechiae; alert then stuporous; hemoglobin 8 mg/dl, platelets 54
- Died of evolving respiratory failure (pulse oximetry was initial 93%) after 37 hours
- Hemothorax, splenic sequestration, hepatomegaly and panacinar necrosis, erythrophagocytosis
<table>
<thead>
<tr>
<th></th>
<th>Dengue</th>
<th>Yellow Fever</th>
<th>West Nile</th>
<th>Japanese Encephalitis</th>
<th>Zika</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reported with Sickle Cell?</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>Fatalities Worse For SCD?</td>
<td>125 vs 4.1/1000 SC vs SS (OR 4.4)</td>
<td>Not Known</td>
<td>Not Known</td>
<td>Not Known</td>
<td>One case, rare death</td>
</tr>
<tr>
<td>Retro–orbital pain</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>Lymph Nodes</td>
<td>No</td>
<td>No</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>Platelets</td>
<td>Low</td>
<td>Low</td>
<td>Normal</td>
<td>Normal 85%</td>
<td>Low</td>
</tr>
<tr>
<td>Neuropathy</td>
<td>Brachial neuritis, myelitis, encephalitis</td>
<td>Minimal</td>
<td>in 1% including meningitis and encephalitis</td>
<td>Hemiparesis, convulsions, mental retardation</td>
<td>Microencephal y, Guillain–Barré</td>
</tr>
</tbody>
</table>
Reasons for Possibly Increased Mortality

- Immunosuppression
- Endothelial dysfunction from inflammation
- SC vs SS cells dehydrate more quickly
- SC vs SS patients may have more neo-angiogenesis
Questions

- What’s the natural history? 80% of persons seem to be asymptomatic. Little is really known.
- How long are people infectious? Incubation time?
- How long is virus in the blood?
- Does one infection confer immunity or does one infection increase the risk of another?
- Will the inflammation of viral infection induce VOC or ACS? If like dengue infections, half would die with 24 hours of presentation
- Should the Olympics be moved?
Selected References

SCDC Updates

- New name: Sickle Cell Data Collection
  - New logo in the works
- All state data submissions approved or in review
  - Medicaid data arriving soon
  - Hospital discharge, ED, vital records to follow
  - NBS pending
- Clinical data requests to begin this summer

Coming: papers on ED utilization (2) and maternal outcomes among women with SCD, and abstracts for SCDAA meeting, ACEP meeting, ASH meeting
SCDC Updates

- Next Webinars:
  - September: Dr. Julie Kanter and South Carolina’s SCD Plan
  - November: Dr. Jean Raphael and Center for Child Health Policy and Advocacy at Texas Children’s Hospital

- New SCD Clinic at MLK Jr. Outpatient Center in Los Angeles – PR and Outreach
  - World Sickle Cell Day (6/19/16): CA Messaging

- CDC Video Projects – Transition and Hispanics
Items of Interest

- World Sickle Cell Day (06.19.2016)
- PCORI Funding Announcement: *Management of Care Transitions for Emerging Adults with Sickle Cell Disease* (08.15.2016)
- Multidisciplinary SCD Conference: *Be A Part of the Change* (09.17.2016)