Congenital Neurological Disorders in Children with Microcephaly Related to Exanthematous Diseases During Pregnancy: A Cohort Study

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**Areas with Risk of Zika**

- An increase in the prevalence of microcephaly (MCP) was seen in Rio Grande do Norte State (RN) since September 2015.
- This Brazilian northeast state was highly impacted by a Zika (ZIKV) outbreak in the last 2 years.
- The highest rate of MCP was in November 2015 with 20.1 cases per 1,000 live births, compared to 1.8 cases/year in the previous years.
- Learning Objective
  - to evaluate the neurological disorders in children with microcephaly whose mothers had exanthematous disease (ED) during the pregnancy.

**Methods**

- Cohort Study
- We evaluated children up to 17 months old followed at a children rehabilitation center in RN.
- Cohort enrollment occurred with children born between January 2015 and May 2016.
- We interviewed their mothers about the occurrence of ED during their pregnancy.

**Background**

- There is a high prevalence of neurological complications in children with MCP related to ED.
- These congenital neurological disorders is likely to pose a substantial burden on public spending on health care, because these patients need close follow-up, more medical intervention, hospitalizations, medications and their families need a psychological support.
- Longer follow-up will provide data regarding these chronic neurological complications and how best to intervene.
- This study may be used to better describe the congenital Zika syndrome, its clinical outcomes and natural history.

**Results**

- 37 cases of MCP (25 male, 12 girls)
- 10 mothers did not know how to describe presence of ED during pregnancy
- 24 cases of MCP with maternal ED
- 9 patients with severe spasticity (Ashworth 3 and 4)
- 4 patients mild spasticity (Ashworth 1 and 2)
- 11 had no spasticity
- 11 patients had seizures
- 5 patients with irritability

**Neurological Disorders**

<table>
<thead>
<tr>
<th>NUMBER OF CASES</th>
</tr>
</thead>
<tbody>
<tr>
<td>IRITATIBILITY</td>
</tr>
<tr>
<td>SEIZURE</td>
</tr>
<tr>
<td>SPASTICITY</td>
</tr>
<tr>
<td>5</td>
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</tbody>
</table>

**Ashworth Scale**

<table>
<thead>
<tr>
<th>SCORE</th>
<th>MUSCLE TONE</th>
</tr>
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<tbody>
<tr>
<td>0</td>
<td>No increase in tone</td>
</tr>
<tr>
<td>1</td>
<td>Slight increase in tone giving a catch when the limb was moved in flexion or extension</td>
</tr>
<tr>
<td>2</td>
<td>More marked increase in tone but limb easily flexed</td>
</tr>
<tr>
<td>3</td>
<td>Considerable increase in tone - passive movement difficult</td>
</tr>
<tr>
<td>4</td>
<td>Limb rigid in flexion or extension</td>
</tr>
</tbody>
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**Contact Information**

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