

Congenital Zika syndrome: an epidemic of neurologic disability

Síndrome congênita do Zika: uma epidemia de desabilidade neurológica

Dear Editors,

The paper by van der Linden et al., “Discordant clinical outcomes of congenital Zika virus infection in twin pregnancies”¹ provides additional information in a story that has placed Zika firmly in the company of other infections such as cytomegalovirus and toxoplasmosis that can cause birth defects in the central nervous system. Unlike these other congenital infections, however, Zika virus regularly causes a particularly severe brain phenotype, rarely seen even by specialists in brain malformations. While microcephaly, central nervous system calcifications, and abnormal gyral patterning can be observed as sequelae of other congenital infections, in the case of Zika these aspects have been notably pronounced and severe².

Some controversy continues to surround the diagnosis of congenital Zika syndrome, in part due to serologic cross-reactivity with Dengue virus³. In this report, both of the affected infants described had positive anti-Zika IgM present in the CSF, evidence that an intrauterine infection with Zika had occurred. The sudden appearance of severe microcephaly, subcortical calcifications, and extensive cortical malformations in epidemic proportions in northeastern Brazil in 2015-2016 does

argue for a single etiologic infectious agent responsible for such an unusual neurologic phenotype in the population.

Many genetic causes of congenital microcephaly are recognized, and most are due to loss-of-function sequence variations in genes critical for cell cycle progression and cellular growth⁴. As a result, these genetic syndromes are often associated with a reduction in number of neuroprogenitor cells. Zika virus appears to behave in much the same way^{5,6}, by targeting for infection those cells most vulnerable for injury, and whose numbers cannot be replaced.

The appearance of an infectious agent that recapitulates known genetic mechanisms for microcephaly has come at an enormous price, with over 2,000 children affected with congenital Zika syndrome in Brazil alone, and cases reported in other countries in Latin America⁷. Already, observed sequelae include epilepsy, visual impairment, feeding difficulties, increased susceptibility to respiratory infections, and orthopedic complications. These children require complex multidisciplinary care, and the long-term social and economic effects of this outbreak have yet to be written.

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