

## Zika virus associated deaths in Colombia

Zika virus infection has emerged in Latin America as an important threat due to its association with Guillain-Barré syndrome, which can lead to deaths, and microcephaly in newborn babies.<sup>1-3</sup> Cases of fatal Zika virus infection are rare and misunderstood. The spectrum of clinical disease remains uncertain and considering the rapidly evolving epidemics of this new arbovirus in Latin America, it deserves further detailed assessment.<sup>1-4</sup> Here, we describe four well documented fatal cases of Zika virus infection in Tolima, Colombia.

Between Oct 2 and Oct 22, 2015, four febrile patients attended Tolima's Hospitals in the central region of Colombia. Patients were a 2-year-old girl, a 30-year-old woman, a 61-year-old man, and a 72-year-old woman, with 2-6 previous days with fever. The infant girl also had dehydration, somnolence, hepatomegaly, mucosa haemorrhage, and thrombocytopenia, evolving to respiratory distress, disseminated intravascular coagulation, and shock. The 30-year-old woman had exanthema in upper and lower limbs, severe thrombocytopenia, and leukopenia, evolving in 10 days to intracerebral and subarachnoid haemorrhages, sepsis, acute respiratory failure, seizures, and shock. The older man had myalgias and arthralgias, with dehydration, mucosa haemorrhage, also evolving to respiratory distress, acute coronary syndrome, and shock. This patient's history included high blood pressure under medication control. The older woman presented with abdominal pain, vomiting, dehydration, somnolence, and thrombocytopenia, evolving to acute respiratory failure and shock. This patient's history included

diabetes mellitus type 2 under control with insulin. In all four patients, giving the endemicity of the zone, dengue fever or chikungunya were suspected. All patients presented with anaemia (haemoglobin range 90-120 g/L), three of them with leukopenia. The 30-year-old woman had leukocytosis, and all but the older man had severe thrombocytopenia (<14 000 platelets per mL). Despite medical management at the intensive care unit, all of four patients died. The infant girl died 24 h after admission (5 days after symptoms began); the 30-year-old woman died after 10 days (12 days after symptoms began); the 61-year-old man at 24 h (7 days after symptoms begun), and the 72-year-old woman in less than 24 h (48 h after symptoms began). In all these cases, RT-PCR for dengue (including tissues), anti-dengue IgM, and NS1 ELISA and western-blot tests were negative. In the 61-year-old man, IgM for chikungunya was positive. IgM for *Leptospira* spp was negative in all cases. Finally, in all patients RT-PCR for Zika virus was positive, confirmed at the Colombia national reference laboratory. In the infant girl and 30-year-old woman, necropsy revealed probable acute leukaemias (lymphoblastic and myeloid, respectively). In the 61 year-old man, necropsy showed ischaemic lesions in the brain with areas of necrosis in the liver and of systemic inflammatory response in the spleen. In this patient, RT-PCR of tissues was positive for Zika virus. In the 72-year-old woman, necropsy showed oedema and ischemic lesions in brain.

From Sept 22, 2015, to March 19, 2016, there were 58 838 cases of Zika virus infection in Colombia (2361 laboratory-confirmed, 49 211 diagnosed by clinical criteria, and 7266 suspected); nevertheless before the current report, only one

previous fatal case has been described, from our group in Colombia.<sup>4</sup> Before the current outbreak in Latin America, Zika virus was not linked to deaths,<sup>1,3,4</sup> but as of Nov 28, 2015, the Brazil Ministry of Health has also reported three deaths associated with Zika virus infection (two in adults and one in a newborn baby).<sup>5</sup> These cases call attention to the need for evidence-based guidelines for clinical management of Zika, as well as the possible occurrence of atypical and severe cases (including possibly congenitally-related microcephaly).<sup>2,3,5</sup> Based in our first case report,<sup>4</sup> such guidelines have been considered and suggested by the European Centre for Disease Control in its recent Rapid Risk Assessment.

We declare no competing interests.

**Andrea Sarmiento-Ospina,**  
**Heriberto Vásquez-Serna,**  
**Carlos E Jimenez-Canizales,**  
**Wilmer E Villamil-Gómez,**  
**\*Alfonso J Rodríguez-Morales**  
**arodriguezm@utp.edu.co**

Secretary of Health of Ibagué, Ibagué, Tolima, Colombia (AS-O); Secretary of Health of Tolima, Ibagué, Tolima, Colombia (HV-S; CEJ-C); Public Health and Infection Research Group, Faculty of Health Sciences, Universidad Tecnológica de Pereira, Pereira, Risaralda, Colombia (CEJ-C; AJR-M); and Infectious Diseases Research Group, Hospital Universitario de Sincelejo, Sucre, Colombia (WEV-G, AJR-M).

- 1 Fauci AS, Morens DM. Zika virus in the Americas - yet another arbovirus threat. *N Engl J Med* 2016; **374**: 601-04.
- 2 Heymann DL, Hodgson A, Sall AA, et al. Zika virus and microcephaly: why is this situation a PHEIC? *Lancet* 2016; **387**: 719-21.
- 3 Rodríguez-Morales AJ. Zika: the new arbovirus threat for Latin America. *J Infect Dev Ctries* 2015; **9**: 684-85.
- 4 Arzusa-Ortega L, Polo A, Pérez-Tatis G, et al. Fatal Zika virus infection in girl with sickle cell disease, Colombia. *Emerg Infect Dis* 2016; **22** (5).
- 5 PAHO. Neurological syndrome, congenital malformations, and Zika virus infection. Implications for public health in the Americas - Epidemiological Alert. 2015. [http://www.paho.org/hq/index.php?option=com\\_content&view=category&layout=blog&id=1218&Itemid=2291](http://www.paho.org/hq/index.php?option=com_content&view=category&layout=blog&id=1218&Itemid=2291) (accessed Feb 13, 2016).



*Lancet Infect Dis* 2016

Published Online

April 7, 2016

[http://dx.doi.org/10.1016/S1473-3099\(16\)30006-8](http://dx.doi.org/10.1016/S1473-3099(16)30006-8)

For the **Rapid Risk Assessment** see <http://ecdc.europa.eu/en/publications/Publications/zika-virus-rapid-risk-assessment-8-february-2016.pdf>