



Letter to the Editor

Guillain–Barré syndrome associated with Zika virus infection in Honduras, 2016–2017[☆]

Despite the enormous magnitude of Zika virus (ZIKV) infection epidemics in the Americas (Musso et al., 2018), studies describing its many consequences, such as congenital Zika syndrome (CZS) (Alvarado-Socarras et al., 2018) and Guillain–Barré syndrome (GBS) (Villamil-Gomez et al., 2017), are lacking for many countries across the region. This mainly concerns reports from the countries of Central America, such as Honduras. Honduras was affected by a ZIKV epidemic during the years 2016–2017 (Zambrano et al., 2019). This study was performed to assess the clinical profiles and the frequency of GBS associated with ZIKV during the outbreak in Honduras in 2016–2017.

A retrospective observational study was performed. Data from patients who met the diagnostic criteria for GBS, according to the Brighton Collaboration (levels 1 or 2), with recent ZIKV infection and screening for other etiologies of GBS, were retrieved and recorded. Cases of ZIKV were clinically and laboratory-confirmed (RT-PCR).

A total of 108 cases of GBS were studied. During the same period, 32 607 cases of ZIKV (0.3% of them) diagnosed by clinical surveillance and 326 confirmed by RT-PCR (33.1% of them) occurred. The mean age of the patients was 34.9 years and 58.9% were male. These patients were from the capital area, Francisco Morazán Province (35.2%), Choluteca (11.1%), and Comayagua (11.1%), among other areas of the country.

Electrophysiological tests were consistent with the primary demyelinating form of the disease. Of the total patients, 10.2% were positive for dengue virus (DENV), chikungunya virus (CHIKV), or ZIKV (Table 1), including six (5.6%) cases due to ZIKV infection and one (0.9%) due to ZIKV–DENV co-infection, among other etiologies (Table 1). Among those with ZIKV GBS, the mean age of the patients was 35.4 years and 67% were male. These ZIKV patients presented fever and rash among other clinical manifestations (Table 1).

The delay between symptom onset and diagnosis was a mean of 4.38 ± 2.72 days; the mean time in the ICU was 14.5 ± 13.06 days (Table 1). Treatment comprised intravenous immunoglobulin (IVIG) in all patients. Twenty-four patients required intubation and assisted ventilation (22.2%). Eleven fatal cases occurred (case fatality rate 10%). The remaining cases had made a satisfactory

recovery at the 1-year follow-up. Since 2017, cases of ZIKV have been seen sporadically in Honduras, as well as associated GBS cases.

Previous ecological analyses in the Americas, including data from Honduras, have found that ZIKV (Dos Santos et al., 2016), in addition to other arboviruses (Villamil-Gomez et al., 2016), is associated with GBS. Although ZIKV infection is usually benign, the clinical evolution can even be fatal in non-GBS cases (Arzuza-Ortega et al., 2016; Sarmiento-Ospina et al., 2016; Rodriguez-Morales et al., 2019). In the context of GBS, countries at risk of ZIKV epidemics require adequate intensive care bed capacity for the management of severe cases (Villamil-Gomez et al., 2017; Dos Santos et al., 2016; Villamil-Gomez et al., 2016). In fact, the GBS cases in the present study were from areas affected by ZIKV epidemics (Zambrano et al., 2019), as well as previous DENV and CHIKV (Zambrano et al., 2017). It can be argued that arbovirus RNA detection by RT-PCR should be part of the study of GBS cases. Most studies have suggested that the numbers of cases of GBS were significantly increased in the Americas during the ZIKV epidemics of 2016 (Dos Santos et al., 2016). Adherence to protocols for the care of patients with acute neurological syndromes in ZIKV endemic areas is clearly vital, and the training and education of healthcare workers, including travel medicine practitioners dealing with people visiting endemic areas, particularly in Latin America, should be prioritized. Finally, in addition to GBS, the spectrum of the neurological consequences of ZIKV include not only CZS and GBS, but also encephalitis, meningoencephalitis, myelitis, sensory neuropathies, optic neuropathy, seizures, and epilepsy, among other reported complications (Medina and Medina-Montoya, 2017).

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Ethical approval

Approval was not required by the Universidad Nacional Autónoma de Honduras Institutional Review Board, as this was a retrospective study.

Conflict of interest

None of the authors has any conflict of interest to declare.

Author contributions

Study design and conception: LIZ and AJRM. Data collection: LIZ, ICFB, RJSF, and CZ. Data analysis: AJRM, LIZ, RJSF, CZ. Writing of

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Table 1

Clinical characteristics of patients with GBS, Honduras, 2016–2017.

Variables	Mean	SD
Age (years)	34.35	23.2
Delay between symptoms and diagnosis (days)	4.38	2.72
Mean time in the ICU (days)	14.5	13.06
Male	Number	%
Etiology	64	58.9
ZIKV RT-PCR-positive	6	5.6
ZIKV/DENV RT-PCR-positive	1	0.9
CHIKV RT-PCR-positive	1	0.9
DENV IgM-positive (RT-PCR-negative)	1	0.9
CHIKV IgM-positive (RT-PCR-negative)	1	0.9
ZIKV/DENV/CHIKV RT-PCR-negative/IgM-negative	97	89.8
Clinical manifestations of ZIKV RT-PCR-positive patients (n = 6)		
Fever	3/6	
Paresthesia	3/6	
Rash	2/6	
Asthenia	1/6	
Myalgia	1/6	

CHIKV, chikungunya virus; DENV, dengue virus; GBS, Guillain-Barré syndrome; ICU, intensive care unit; IgM, immunoglobulin M; RT-PCR, reverse transcriptase polymerase chain reaction test; SD, standard deviation; ZIKV, Zika virus.

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