Travel Medicine and Infectious Disease 30 (2019) 114–116

Contents lists available at ScienceDirect

Travel Medicine and Infectious Disease

journal homepage: www.elsevier.com/locate/tmaid

Gastrointestinal, respiratory and/or arboviral infections? What is the cause of the Guillain-Barré syndrome epidemics in Perú? Current status – 2019

ARTICLE INFO

Keywords:
Guillain-Barré syndrome
Zika
Enterovirus D68
Rhinovirus
Respiratory syncytial virus
Peru
Latin America

Guillain-Barré syndrome (GBS) is a rapid-onset muscle weakness disease caused by the immune-mediated damage of the peripheral nervous system [1]. During recent epidemics of Zika virus (ZIKV) infection, a significant increase in the incidence of GBS cases in Latin America occurred [1,2]. In Peru, 300 to 500 cases of GBS cases at the hospital level are reported annually [3]. Historical data, recently published, showed that a total of 955 cases of GBS were identified between 2012 and 2017 in the country, yielding a national incidence ranging from 0.62 cases/100,000 inhabitants (2015 with 214 cases) to 0.91 (2017 with 290 cases) [4]. From January 2017 to June 2019, EsSalud (Peru's equivalent of a social security program), reported 459 cases, clearly showing an increase from 2017 (92 cases) to 2018 (104) and 2019 (263) (Fig. 1), with the highest peak in June 2019 with 223 cases reported just this month.

In more than ten of the twenty-four departments of Peru, there has been an increase in the number of GBS cases (Fig. 1), most of them located in the Pacific coast in the north of the country, Piura, Cajamarca, La Libertad and Amazonas, areas that border with Ecuador, also Lima, Huancavelica and Apurimac, among others (Fig. 1). For most of the 2018 cases, Enterovirus D68 was the leading cause of the sudden outbreak. This pathogen is transmitted mainly via the fecal-oral route, in addition to other routes such as the respiratory route and through the conjunctival fluid [3]. Some cases were also associated with ZIKV [3]. Although investigations are still ongoing, in 2019 GBS cases of Peru have been associated with immunological or molecular diagnoses of *Escherichia coli* (13 cases), *Campylobacter jejuni* (7 cases), Rhinovirus (6 cases), and Respiratory Syncytial Virus (2 cases), among other infectious agents identified with one case each of chikungunya, *Leptospira*, Adenovirus and *Rickettsia*. In Chiclayo, at the Hospital Nacional Almanzor Aguinaga Asenjo, from 16 GBS sampled patients, ten have been IgG positive for chikungunya.

Contrary to expected, the GBS outbreak in Peru is not associated with arboviral infections such as ZIKV, although maybe with chikungunya. This is consistent with the low incidence of ZIKV in Peru compared to Brazil and Colombia, as well as other countries in Latin America [5]. Given this epidemiological scenario, there are implications for public health and for travel medicine in both pre- and post-travel scenarios, for travelers coming from Peru during this year. More than ever, consider the Pan American and Parapan American Games, that will take place from July 26th to September 1, 2019, in Lima, Peru. It is important for practitioners to consider the GBS outbreak in Peru and alert infectious diseases and travel medicine clinicians about this situation [6]. It is also important to remember that individuals from arboviral endemic may be associated with GBS.

Enhanced surveillance and multiplex molecular panels for the diagnosis of gastrointestinal, respiratory and arboviral infections in Peru will be of utmost importance during the current outbreak to better define the causative pathogens, also including other infectious agents such as *Mycoplasma pneumoniae*, EBV and CMV, among others [5]. Adherence to protocols for the care of patients with acute neurological syndromes is vital, and the training and education of healthcare workers, including travel medicine practitioners dealing with people visiting Peru, should be prioritized [2].

Finally, evidence derived from multiple studies indicates and reaffirm that *C. jejuni* is still the primary trigger of GBS cases. In some regional scenarios, association with other infectious agents, such as arboviral diseases and enteroviruses, as occurred in Brazil, Colombia [5] and Honduras [2] is possible. In those countries, ZIKV was associated with a significant increase in GBS cases.

https://doi.org/10.1016/j.tmaid.2019.06.015
Received 26 June 2019; Received in revised form 27 June 2019; Accepted 28 June 2019
Available online 29 June 2019
1477-8939/ © 2019 Elsevier Ltd. All rights reserved.

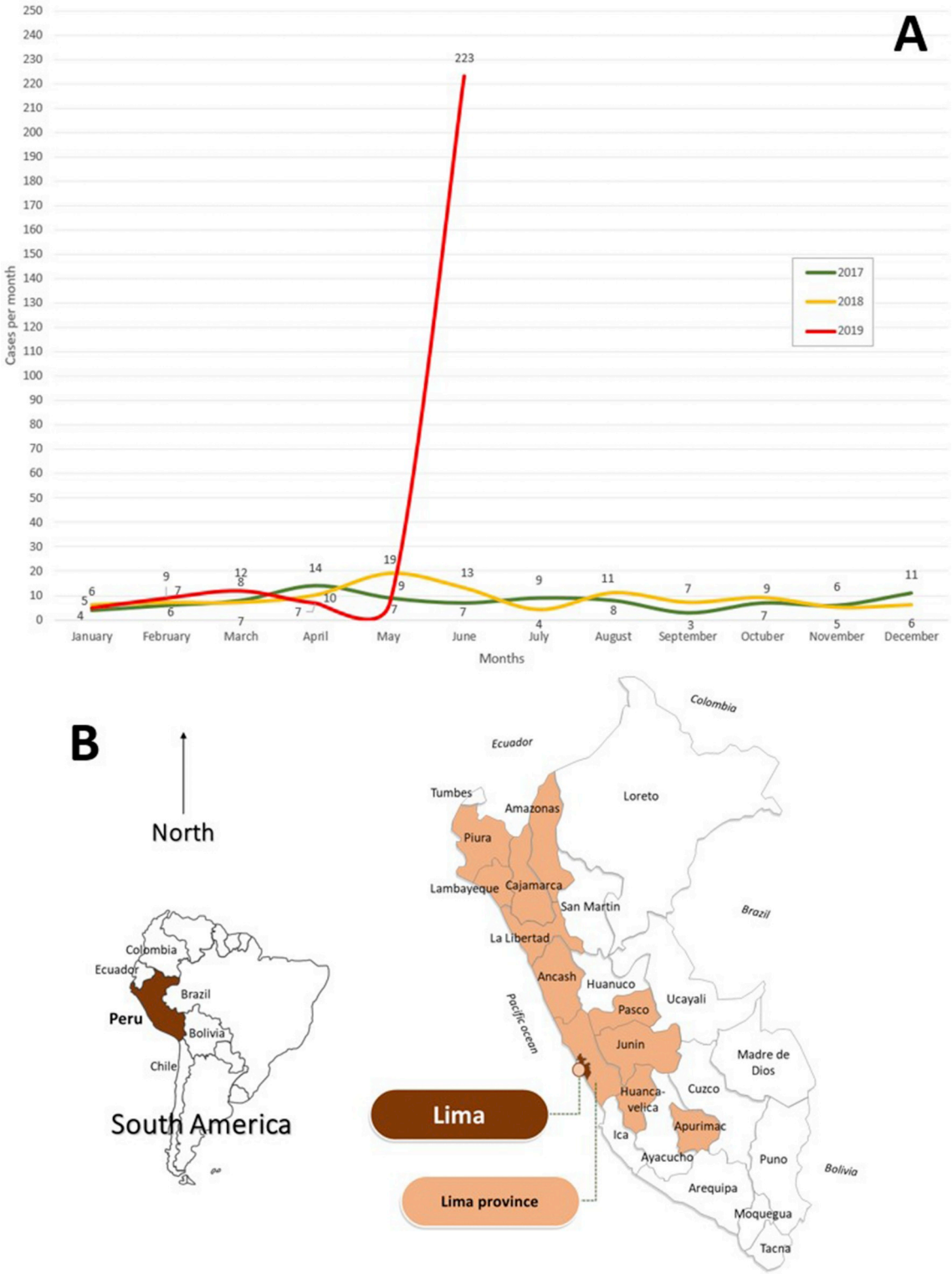

Fig. 1. Cases per month of GBS diagnosed at EsSalud Peru, January 2017–June 2019 (A) and its geographic distribution in 2019 by departments where the incidence have increased significantly (compared with the historically expected numbers, colored) (B).

Funding

None.

Conflicts of interest

None.

CRediT authorship contribution statement

Alfonso J. Rodríguez-Morales: Conceptualization, Formal analysis, Writing - original draft. **Virgilio E. Failoc-Rojas:** Data curation, Formal analysis, Writing - original draft. **Cristian Díaz-Vélez:** Data curation, Formal analysis, Writing - original draft.

References

[1] Mahecha MP, Ojeda E, Vega DA, Sarmiento-Monroy JC, Anaya JM. Guillain-Barre syndrome in Colombia: where do we stand now? Immunol Res 2017;65:72–81.

[2] Zambrano LI, Fuentes-Barahona IC, Soto-Fernandez RJ, Zuniga C, da Silva JC, Rodriguez-Morales AJ. Guillain-Barre syndrome associated with Zika virus infection in Honduras, 2016-2017. Int J Infect Dis 2019;84:136–7.

[3] Diaz-Soto S, Chavez K, Chaca A, Alanya J, Tirado-Hurtado I. Outbreak of guillain-barre syndrome in Peru. eNeurologicalSci 2019;14:89–90.

[4] Munayco CV, Soto Cabezas MG, Reyes MF, Arica Gutierrez JA, Napanga Saldana O. Epidemiology of guillain-barre syndrome in Peru. Rev Peru Med Exp Salud Pública 2019;36:10–6.

[5] Villamil-Gomez WE, Sanchez-Herrera AR, Hernandez H, Hernandez-Iriarte J, Diaz-Ricardo K, Castellanos J, et al. Guillain-Barre syndrome during the Zika virus outbreak in Sucre, Colombia. Trav Med Infect Dis 2016;2017(16):62–3.

[6] Gallego V, Berberian G, Siu H, Verbanaz S, Rodríguez-Morales AJ, Gautret P, et al. The 2019 Pan American games: communicable disease risks and travel medicine advice for visitors to Peru – recommendations from the Latin American Society for Travel Medicine (SLAMVI). Travel Medicine and Infectious Disease; 2019.

Alfonso J. Rodríguez-Morales*

Public Health and Infection Research Group, Faculty of Health Sciences, Universidad Tecnológica de Pereira, Pereira, Risaralda, Colombia

Committe on Travel Medicine, Pan-American Association of Infectious Diseases (API), Asunción, Paraguay

E-mail address: arodriguezm@utp.edu.co.

Virgilio E. Failoc-Rojas

Unidad de Investigación para la Generación y Síntesis de Evidencias en Salud, Universidad San Ignacio de Loyola, Lima, Peru

Cristian Díaz-Vélez

Hospital Nacional Almanzor Aguinaga Asenjo EsSalud, Chiclayo, Peru

Centro de Investigación en Epidemiología Clínica y Medicina Basada en Evidencias, Universidad de San Martín de Porres, Chiclayo, Peru

* Corresponding author.