



Clinical short communication

Guillain Barré syndrome in arbovirus outbreak, Campylobacter claims his throne



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Since the arrival of Zika (ZIKV) and Chikungunya viruses in the Americas, an increase in acute neurological syndromes has been observed, specially of the Guillain Barré syndrome (GBS) in adults, with associated significant morbidity and mortality, also suggesting a high neurotropism associated to Zika [1,2].

In the pre-Zika era, Campylobacter was considered the one of the main triggers for GBS, followed by other viral and bacterial agents. With the advent of ZIKV, the incidence of the syndrome increased exponentially, varying from one geographic region to another. The main cohort in which this causal association was demonstrated was the one reported in the French Polynesia (occurred before the arrival of ZIKV in the Americas), in which 41 of 42 cases of the syndrome were associated with a probable recent infection with the Zika virus [3].

Upon arrival in South America, according to a bibliometric study conducted, the average incidence of ZIKV as the causative agent of the syndrome was estimated as 42%, varying from one study cohort to another and with some disparate results in the same country or geographic region. A meta-analysis that included South American cohorts estimated the prevalence of Guillain-Barré syndrome associated with ZIKV at 1.23% [4,5].

There are few studies that included Campylobacter jejunii in their diagnostic protocol (only two studies searched for evidence of infection by serology) during the ZIKV outbreak, focusing attention on the search for the main emerging arboviruses: dengue, chikungunya, and zika. As the wave of ZIKV cases was rising across the American continent, it was observed that over time, the causal association between the virus and Guillain Barré syndrome had been slowly vanishing. In the experience documented in the Mexican southeast, specifically the state of Veracruz, (where the first ZIKV cases were detected in 2016), studying an initial cohort of 8 patients, ZIKV infection was surprisingly not found, but a concurrent increase in the incidence of cases of GBS (from 0.04 cases/month to 2 cases/month) was observed. Later in that same year, the

cohort of patients from the two largest hospitals in this city could be further analyzed, and of 18 patients who were initially tested for the 3 main arboviruses, in only two cases ZIKV in the urine (using RT-PCR) was detected, with associated detection of two other cases of dengue infection (IgM) [6].

Given the low incidence of ZIKV and the concomitant presence of dengue virus, in 2017 the search for other viral and bacterial agents was further expanded. In this cohort that included 16 patients, acute ZIKV infection could not be demonstrated in serum or urine using RT-PCR and IgM/IgG serology; in contrast, other viral agents such as dengue, chikungunya, herpes, and enterovirus were identified. The detection of Campylobacter jejunii in rectal swabs via RT-PCR was even more remarkable, with 12 out of 16 cases positive (75%), with a negative sample and 3 other contaminated samples (not processed). Six of these patients reported a preceding diarrheal syndrome, 4 of which were positive for Campylobacter jejunii and 1 for enterovirus, suggesting that Campylobacter jejunii remains as of the main agents involved in triggering GBS in this geographical region [7].

There are still some open questions, such as the increase in the incidence of Guillain Barré cases not explained by the presence of ZIKV, as in other parts of the Americas. Similarly, despite the presence of Campylobacter jejunii, a diarrheagenic germ par excellence, the majority of patients denied previous diarrheic disease, which may alert to a possible over detection of asymptomatic carriers in this population or to the fact that Guillain Barré syndrome could occur in the absence of clinical diarrhea. Finally, we recommend that all cases of Guillain Barré syndrome are tested for an extended protocol of known neurotropic viral agents, including ZIKV and Chikungunya, as well as bacterial agents, mainly Campylobacter, with the aid of coproculture and/or rectal swab techniques for DNA/RNA detection, since serological studies can provide erroneous results in this situation.

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