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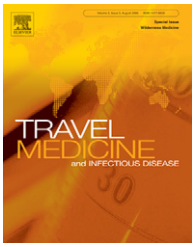

CORRESPONDENCE

Chagas disease screening among Latin American immigrants in non-endemic settings

Sir,

Despite significant decreases in infection and mortality that have been achieved through vector and transfusion-related control initiatives in Central and South America over the last decade, current estimates suggest that 10–13 million people are chronically infected with *Trypanosoma cruzi* and approximately 90 million individuals remain at risk of contracting the infection.[1,2] Economic hardship and political conflicts constitute the main drivers of migration of populations from Chagas disease-endemic areas or countries to non-endemic areas and developed countries in North America, Europe, Japan, and Australia.[1,2] In this manner, Chagas disease threatens to expand exponentially, from rural to urban areas and endemic to non-endemic regions.[2,3]

Attempts to identify the prevalence of latent *T. cruzi* infection among immigrants in many of these settings have been performed in order to justify broader screening programs such as those including pregnant women or the blood-bank supply. As a result of proper screening programs, an important number of previously undiagnosed Chagas disease cases have been identified in the USA among Latin American immigrants. These results have prompted the development of evidence-based guidelines issued for clinicians to appropriately evaluate and treat Chagas disease cases recently identified in the USA.[4,5]

While we concur with broader screening programs among Latin American immigrants residing in non-endemic settings, we are concerned about the methodology employed in some of these efforts. As an example, a recently published article by Steele et al.[6] identified only one participant seropositive for latent *T. cruzi* infection in community-based study of 102 (1.0%) immigrants in Canada. Although we agree that the seroprevalence identified in this study could be partially accurate, the findings of this study are largely misleading.

Vector-borne American trypanosomiasis is a neglected tropical disease that affects mainly populations living in poorly constructed dwellings of rural or semi-urban areas of Mexico, Central, and South America.[3] Indeed, poor housing conditions have promoted increased contact with the infected vectors. Although, Steele et al.[6] described the country of origin of the study participants, they did not provide any detailed information about the specific areas of origin in their countries (e.g., urban, semi-urban, or rural) or the reason why these patients were chosen to participate in the study, besides being from Latin America. This is an important issue when evaluating seroprevalence of a geographically restricted disease such as Chagas disease. Indeed, in the hypothetical scenario of conducting a seroprevalence study to determine *Borrelia burdorgferi* infection among US expatriates living in Central or South America without including the precise region of the USA where they had previously resided, it will likely provide inaccurate information, given the fact that most cases of Lyme disease occur in the Northeastern States of the USA. In an analogous manner, it is tempting to speculate that many Latin American immigrants living in Canada or the USA had never lived in Chagas endemic areas. In a similar fashion, the bias introduced by errors in sampling also occurs in studies reported from Chagas endemic countries. In a transversal study of Chagas disease in Venezuela, a seroprevalence of 0% was found among a sample of 678 pregnant women in Caracas.[7] It is important to note that his study was conducted in Caracas, the most urbanized area of Venezuela. Therefore, using a sampling of "Latin American immigrants" as reported by Steele et al. to enroll patients without employing any other specific variables or a structured sample selection provides inadequate data of the true prevalence of *T. cruzi* infection in non-endemic settings. Blood-bank screening programs or screening of patients reaching the healthcare system with the right epidemiology or risk factors for this infection; or the presence of symptomatic Chagas disease; or EKG or chest radiograph abnormalities may offer the opportunity to better estimate the prevalence of this infection in non-endemic settings.

Recent references of the real morbidity and seroprevalence of Chagas disease of many of the Latin American countries considered in that study[6] are currently available. In the Canadian study,[6] the highest number of evaluated individuals was from El Salvador, representing a third of the total evaluated population; a country with 6.4% of seroprevalence. According to available seroprevalence rates, it would have been more relevant to include higher numbers of sampled individuals from Argentina (12.5% of seroprevalence), Chile (12.2%), Guatemala (9.4%) and Brazil (8.3%), which actually represented less than 25% of the total immigrants evaluated in the study.

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In Venezuela, recently published studies have revealed a seroprevalence among rural populations (with a sampling of 3835 individuals) of 11.7%.[8] Interestingly, when discriminated by age groups, individuals older than 50 years had a seroprevalence of 38.6%. This important issue illustrates another potential source of bias in the analysis by Steele et al. because in the immigrant population evaluated, only 25.4% of participant's were $\geqslant$45 years of age.[6] Finally, this study indicates that about 3000 individuals in the group of Latin American immigrants living in Canada may be at risk for the sequelae of chronic *T. cruzi* infection. It may be more convenient to consider this number as an estimated interval, resultant from the found seroprevalence 95% CI (0.2–5.3%),[6] of 600–15,900 individuals at risk.

In summary, we suggest that in order to better define the seroprevalence of Chagas disease among Latin American immigrants, it is critical to incorporate more specific variables in the sampling methodology including age and specific areas of residence in endemic and non-endemic settings. This will offer the opportunity to appropriately target screening programs in a more effective manner to avoid potential misallocation of diagnostic and preventive resources.

Conflict of interest

The authors have no conflict of interest to disclose.

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