Vital signs on admission were: blood pressure 96/67 mmHg, heart rate 90 bpm, oxygen saturation on room air 90%. Some bibasilar moist rales and jugular venous distension were detected on auscultation. The electrocardiogram revealed the presence of atrial fibrillation with complete left bundle branch block. The value of brain natriuretic peptide was 430.2 pg/dl ($N < 100$). Immunological tests showed the presence of antinuclear antibodies with a titre of 1/640. The indirect immunofluorescence test evidenced a speckled pattern. The test for anti-RNA polymerase-III detection was positive. The high-resolution CT scan showed the presence of mild interstitial lung disease, and a thickened pericardium. Echocardiography revealed absence of PE, with the presence of overall dyskinesia (LV ejection fraction was 35%). There were signs suggestive of pericarditis. The left coronary angiography found no significant abnormalities. Right heart catheterization confirmed the diagnosis of pericarditis.

The final diagnosis was chronic constrictive pericarditis associated with SS. Performing a pericardiectomy was considered, but the surgical risk was greater than the potential benefits. Treatment of heart failure was optimized by adding bisoprolol at low doses (2.5 mg/day). Sodium mycophenolate (720 mg/day) was initiated. Doses of prednisone and furosemide were maintained. She was discharged without signs of heart failure or respiratory compromise.

She has remained stable during follow-up and has been monitored on an outpatient basis. After 9 months of treatment, she achieved a functional class II as per NYHA. Further episodes of cardiac tamponade or heart failure did not occur. At that time, an echocardiogram showed a slight decrease in left ventricular ejection fraction (48% 2D) with the presence of septal *notch*, and no other signs of constriction. PE or indirect signs of pulmonary arterial hypertension were not detected.

CI is a common complication in patients with SS. Acute pericarditis can be treated with nonsteroidal anti-inflammatory drugs or colchicine. In chronic cases, corticosteroids or disease-modifying antirheumatic drugs may be indicated, although there is risk of developing scleroderma renal crisis with equivalent doses of prednisone >7.5 mg/day in diffuse cutaneous SS.[1,4] Mycophenolate is a safe drug, with immunosuppressive and anti-fibrotic effect, which has proved effective in SS for skin and lung involvement.[5] Because of this, we decided to initiate mycophenolate sodium in our patient, which proved to be effective for the treatment of chronic pericardial disease. Further studies in order to evaluate alternatives for pericardial involvement related to SS are needed.

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References

1. Parks JL, Taylor MH, Parks LP, Silver RM. Systemic sclerosis and the heart. Rheum Dis Clin North Am. 2014;40:87–102.
2. Fernández-Codina A, Simeón-Aznar CP, Pinal-Fernandez I, Rodríguez-Palomares J, Pizzi MN, Hidalgo CE, et al. Cardiac involvement in systemic sclerosis: differences between clinical subsets and influence on survival. Rheumatol Int. 2017;37:75–84, http://dx.doi.org/10.1007/s00296-015-3382-2.
3. Subramanian SR, Akram R, Velayati A, Chadow H. New development of cardiac tamponade on underlying effusive-constrictive pericarditis: an uncommon initial presentation of scleroderma. BMJ Case Rep. 2013, pii: bcr2013010254.
4. Fernández Morales A, Iniesta N, Fernández-Codina A, Vaz de Cunha J, Pérez Romero T, Hurtado García R, et al. Cardiac tamponade and severe pericardial effusion in systemic sclerosis: report of nine patients and review of the literature. Int J Rheum Dis. 2016, http://dx.doi.org/10.1111/1756-185X.12952.
5. Omair MA, Alahmadi A, Johnson SR. Safety and effectiveness of mycophenolate in systemic sclerosis. A systematic review. PLoS One. 2015;10:e0124205.

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Study of the scientific production on Hantaviruses in Latin America and the Caribbean☆

Estudio de la producción científica sobre hantavirus en Latinoamérica y el Caribe

Dear Editor,

Hantaviruses (hantavirus genus, *Bunyaviridae* family) are zoonotic pathogens that have as a characteristic their association with specific rodents, which are their natural hosts and reservoirs. The form of transmission is the inhalation of aerosols from excreta of infected rodents, as the virus is eliminated through these animals' saliva, urine and stools. They are the etiological agents of 2 syndromes geographically distributed: hemorrhagic fever with renal syndrome (HFRS) in Europe and Asia, and hantavirus cardiopulmonary syndrome (HCPS) in America.[1] The Andes virus (ANDV) is considered the main hantavirus in South America. A total of 963 cases were detected in Chile between 1993 and 2015, with an incidence ranging from 0.17 to 0.53 cases per 100,000 inhabitants.[2] Although its incidence is low, it produces a high mortality rate, which fluctuates between 30% and 50%; for that reason, the disease caused by hantavirus is considered a serious public health problem in Chile and also constitutes a threat in Latin America, where cases have been reported in at least 9 countries, including Bolivia, Brazil, Colombia, Ecuador, Paraguay, Panama, Uruguay and Venezuela.[2]

With the objective of evaluating the development of research and scientific publication on hantavirus in Latin America and the Caribbean, a cross-sectional descriptive study was carried out through a bibliometric analysis of all articles published between 1990 and 2016 in the most important biomedical databases: SciELO, LILACS and Medline/PubMed (via GoPubMed®), using the term "Hantavirus" (MeSH, DeCS) as search strategy in English, Spanish and Portuguese.

A total of 148 articles were found in SciELO, of which 58 came from Brazil (39.18%), 43 from Chile (29.05%), 14 from Argentina (9.45%), 6 from Colombia (4.05%) and 3 from Mexico (2.02%), with an annual production of 6.72 ± 4.27. The LILACS search yielded 295

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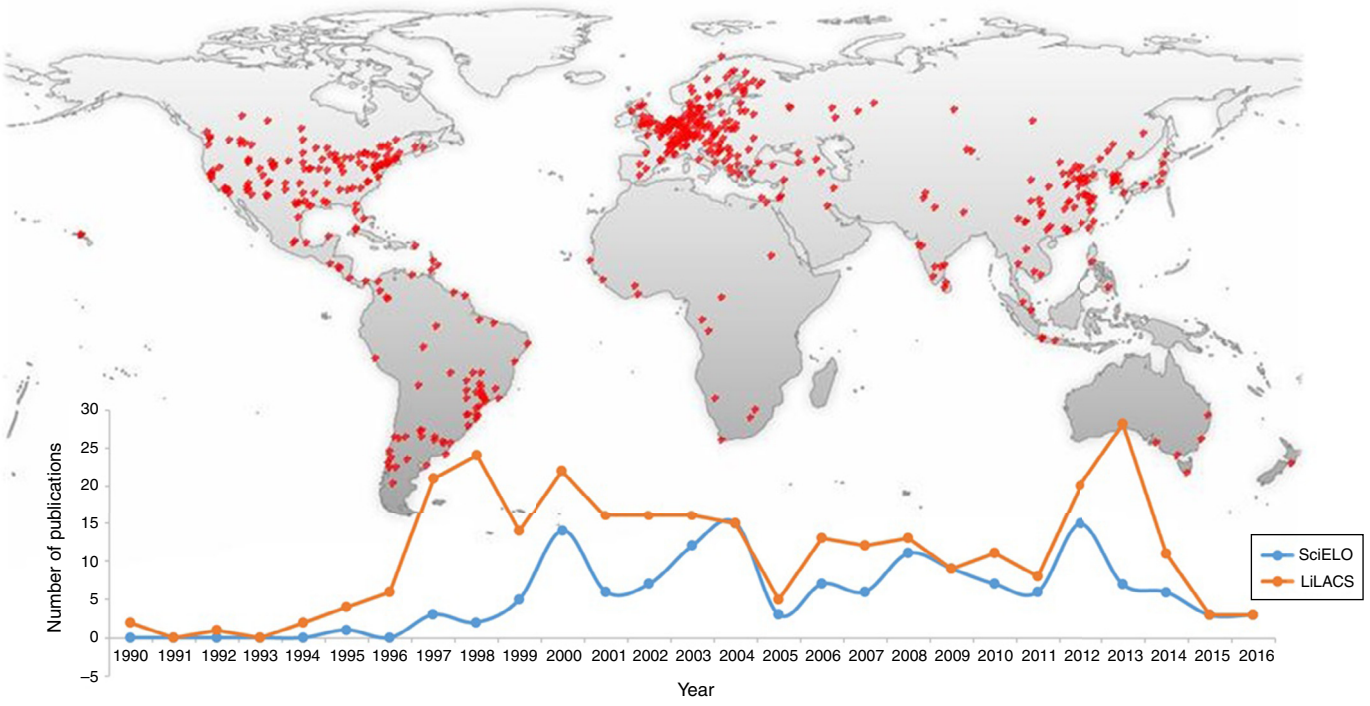

Fig. 1. World distribution of hantavirus research in PubMed/Medline and trends in scientific production time in Latin America and the Caribbean in LILACS and SciELO (1990–2016).
Source: GoPubMed®.

studies (31.86% of Brazil, 30.5% of Chile, 20% of Argentina, 3.38% of Colombia and 2.37% of Paraguay), with an annual production of 6.57 ± 5.50. On the other hand, globally, in PubMed/Medline (using GoPubMed®) 3835 documents were found, 124 (3.23%) from Latin American countries (Fig. 1), with Brazil being the leader (38.7%), followed by Chile (23.38%), Argentina (2.61%), Cuba (1.61%), Costa Rica (1.61%) and Venezuela (1.61%), with an annual output of 4.76 ± 2.23 articles.

Despite the limitations of the study, the results show a low scientific production on hantavirus in Latin America and the Caribbean, as previously reported in bibliometric studies of other infectious diseases.[3,4] Brazil has the highest scientific production in the region and, observing the publications' behaviour over time (Fig. 1), there is a clear downward trend in the last 3 years.

It is important to take into account that the serological identification of hantavirus and the circulation of rodents that transmit it in other Latin American countries make it a high-risk area regarding the occurrence of HCPS cases and, in Chile, the recent discovery of new reservoirs highlights the infectious potential of the virus in a wide range of hosts.[5] For this reason, it is important to increase research on this virus in humans, as well as in rodents, so as to intensify epidemiological surveillance measures, training health workers in identifying and suspecting infection, decreasing mortality rates and preventing the spread of new cases in susceptible populations.

References

1. Blanco P, Arroyo S, Corrales H, Pérez J, Álvarez L, Castellar A. Serological evidence of hanta virus infection (*Bunyaviridae:* Hantavirus) in rodents from the Sucre Department in Colombia. Rev Salud Publica. 2012;14:755–64.
2. Riquelme R, Rioseco ML, Bastidas L, Trincado L, Riquelme M, Loyola H, et al. Hantavirus pulmonary syndrome. Southern Chile, 1995–2012. Emerg Infect Dis. 2015;21:562–8.
3. Ortiz-Martínez Y, Villamil-Gómez WE, Rodríguez-Morales AJ. Bibliometric assessment of global research on Venezuelan Equine Encephalitis: a latent threat for the Americas. Travel Med Infect Dis. 2016, http://dx.doi.org/10.1016/j.tmaid.2016.09.003, pii: S1477-8939(16)30121-1.
4. Delgado-Osorio N, Vera-Polania F, Lopez-Isaza AF, Martinez-Pulgarin DF, Murillo-Abadia J, Munoz-Urbano M, et al. Bibliometric assessment of the contributions of literature on Chagas disease in Latin America and the Caribbean. Recent Pat Antiinfect Drug Discov. 2014;9:202–8.
5. Torres-Pérez F, Boric-Bargetto D, Palma E. Hantavirus in Chile: new rodents with potential epidemiological importance. Rev Med Chile. 2016;144:816–20.

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