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Serologic prevalence of Chagas disease among Latin American blood donors in Spain

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Background: Population movements from Chagas disease-endemic areas to non-endemic countries due to immigration make the occurrence of this disease in these latter areas possible Chagas disease can be transmitted by the hemoderivatives donation. To prevent this transmission during blood transfusion Spanish legislation compels to the screening all those donors from endemic areas. The aim of this study is describe the results of Chagas disease screening program in a group of donors from endemic areas between the years 2006-2014.

Material/methods: 1487 samples from Latin-american blood donors were collected by the blood bank of the Transfusion Comunitarian Centre from Asturias, Spain among June 2006-June 2015. Sex, age, country of origin and previous diagnostic of Chagas disease data were collected from each donor. Stick Chagas (Operon S.A. (Zaragoza) Spain) antibody test (inmunocromatography) was used as a screening assay. All positive samples were sent to the Centro Nacional de Microbiologia (Instituto Carlos III, Spain) to confirm the result by determination of anti-T. cruzi antibodies by a second ELISA (Ortho Clinical Diagnostics), indirect immunofluorescent antibody test (IFAT) and polymerase chain reaction (PCR).

Results: During the period of study 1486 donors (64% were women, average age of 36 [8] were analyzed. The main origin countries were Colombia (21%), Ecuador (17%), Argentina (15%),Venezuela (13%), Brazil (12,5%), Mexico and Uruguay (4% each),Paraguay and Peru (3% respectively) and others (7,5%). Only 24 donors come from Bolivia. No data from previous episodes of Chagas disease were collected. Five positive cases were detected (0.33% of prevalence) which came from Bolivia (3 cases) and Brazil (two cases). The country prevalence was 12.5% for Bolivia (p = 0.00001, OR 90 [11-816]) and 1.08% for Brazil (p = 0.06, OR 4.67 [0.54-34,4]). Twelve patients from Venezuela, Argentina, Colombia (3 cases each), Ecuador (2 cases) and the Dominican Republic (1 case) had false positive screening technique, The false positive rate was significantly higher in donors from Venezuela (p = 0.008, OR 5 [1-20]). In three cases the tests showed a discordant result.

Conclusions: The prevalence of Chagas disease in donors from endemic areas is low but increases significantly in those from Bolivia and Brazil. Given the risk of transmission is needed systematic screening especially in these populations