Supplement:

Figure S1. Forest plot of age in patients with Chagas cardiomyopathy vs. indeterminate disease. CCC: Chagas cardiomyopathy

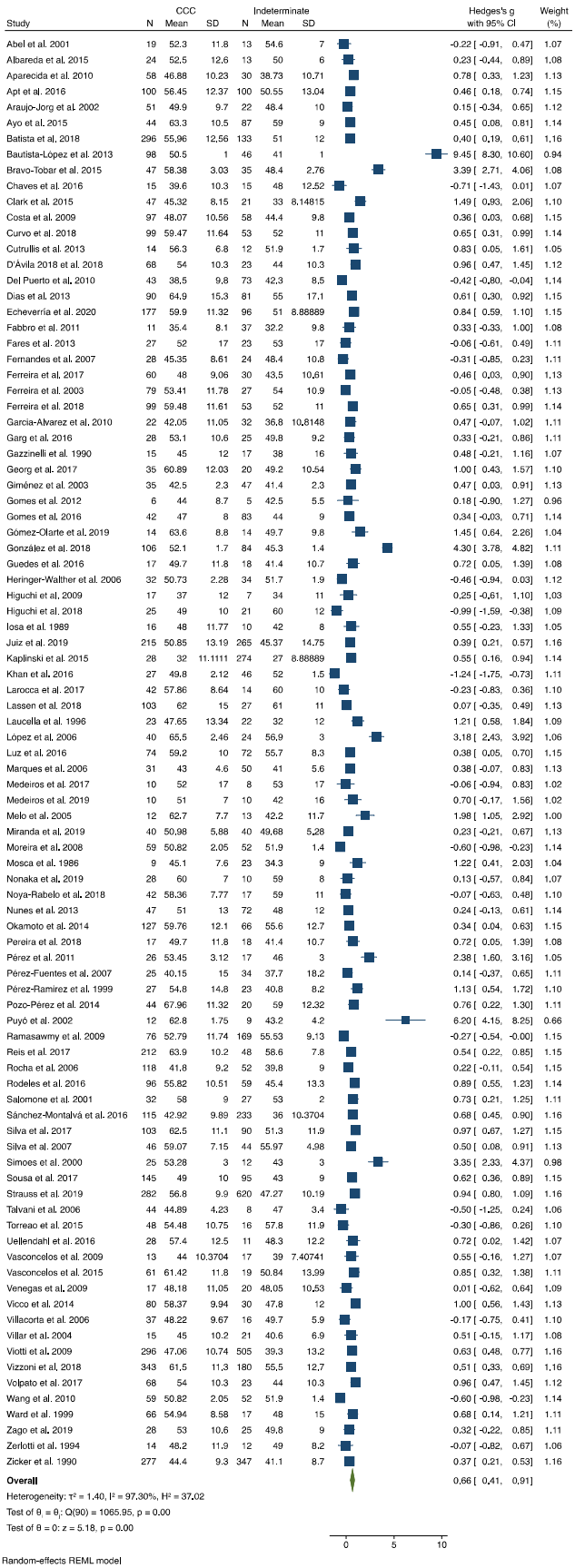

Figure S2. Forest plot of sex in patients with Chagas cardiomyopathy vs. indeterminate disease. CCC: Chagas cardiomyopathy. The proportion of males and the standard deviation (SD) are indicated.

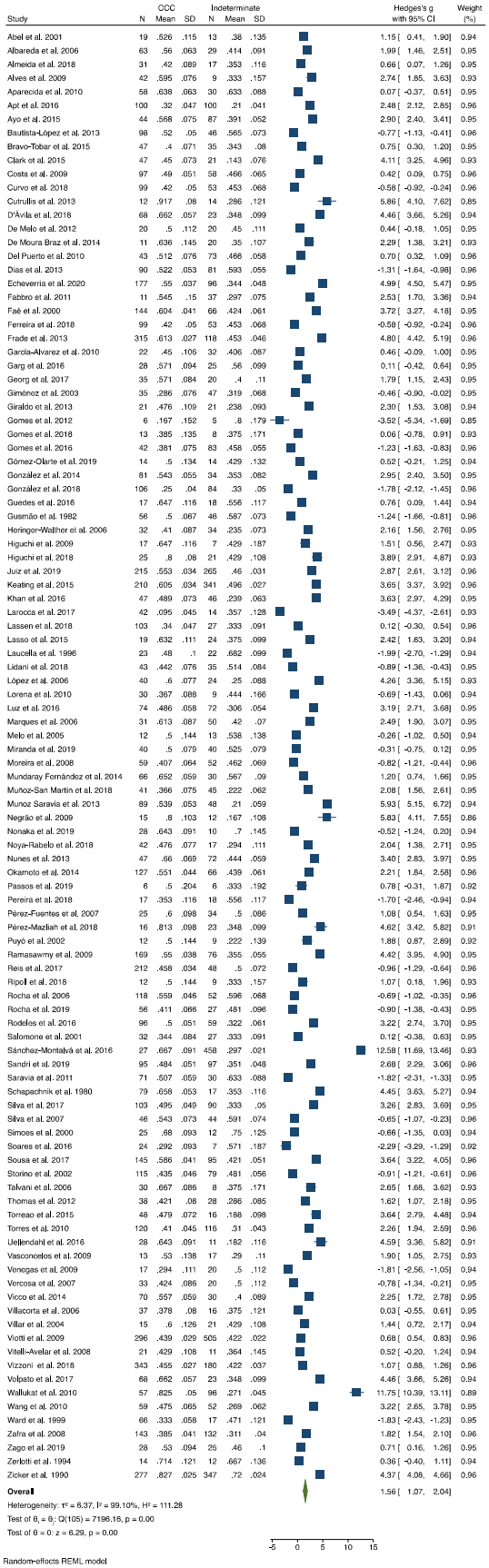

Table S1. Search Terms

Database	Search Terms	Results (n)	Date Searched
PubMed	("Chagas Cardiomyopathy"[Mesh] OR (chagas OR chagas*)) AND (cardiomyopath* OR cardiopathy OR trypanosomiasis OR myocarditis OR "heart failure" OR cardiac)) AND (risk[tw] OR risks[tw] OR risk factors[mesh] OR driver[tw] OR drivers[tw] OR determinant*[tw] OR suscep*[tw] OR predict*[tw] OR biomarker[tw] OR biomarkers[tw] or indicat*[tw] OR progress*[tw] OR disease progression[mesh] OR onset[tw] OR occur*[tw] OR develop*[tw] OR chronic*) NOT (animals[mesh] NOT humans[mesh]) NOT (letter[pt] OR comment[pt] OR editorial[pt])	**5754**	**3/4/20**
EMBASE	('Chagas cardiomyopathy'/exp OR (chagas OR Chagas*)) AND (cardiomyopath* OR cardiopathy OR trypanosomiasis OR myocarditis OR "heart failure" OR cardiac)AND (risk:ti,ab,de,tn OR risks:ti,ab,de,tn OR 'risk factors'/exp OR driver:ti,ab,de,tn OR drivers:ti,ab,de,tn OR determinant:ti,ab,de,tn OR suscep*:ti,ab,de,tn OR predict:ti,ab,de,tn OR biomarker:ti,ab,de,tn OR biomarkers:ti,ab,de,tn OR indicat*:ti,ab,de,tn OR progress:ti,ab,de,tn OR 'disease progression'/exp OR onset:ti,ab,de,tn OR occur*:ti,ab,de,tn OR develop*:ti,ab,de,tn OR chronic*) NOT ('animals'/exp NOT 'humans'/exp) NOT (letter:it OR comment:it OR editorial:it)	**4012**	**3/18/20**
LILACS	(Chagas OR chagasic) and (risk or risks or "risk factor" or "risk factors" or driver or drivers or determinant or determinants or susceptibility or predict or predictor or predictors or biomarker or biomarkers or indicator or indicators or progress or progression or "disease progression" or onset or occur or occurrence or develop or development or chronic) and (cardiomyopathy or cardiopathy or trypanosomiasis or myocarditis or "heart failure" or cardiac)	**460**	**3/20/20**
Clinicaltrials.gov	(vertical OR congenital) AND (risk OR risks OR driver OR drivers OR determinant OR predict OR predictor OR indicate OR indicator OR susceptible OR susceptibility) | Chagas Disease	**2**	**3/20/20**

Table S2. Evidence table of included studies.

Study	Population	Study Design	Disease Categories	Age (years)	Sex
Abel 2001	Patients at the Heart Institute (InCor), São Paulo, Brazil	Cross-sectional	IND (n=13): T. cruzi seropositive individuals with a normal EKG and bimensional echocardiography CCC (n=19): T. cruzi seropositive patients with severe heart failure, dilated cardiomyopathy, all other causes excluded	IND: 54.6 ± 7.0 CCC: 52.3 ± 11.8	IND: 5 males CCC: 10 males
Albareda 2006	Patients at the Instituto Nacional de Parasitología Dr. Mario Fatala Chabén and at the Chagas disease Section, Cardiology Department, Hospital Interzonal General de Agudos Eva Perón, Argentina	Cross-sectional	IND (n=29): seropositive individuals with normal ECG and CXR CCC: -G1 (n=29): seropositive individuals with normal CXR but abnormal ECG -G2 (n=13): seropositive individuals with abnormal ECG and heart enlargement on CXR -G3 (n=21): seropositive individuals with abnormal ECG, heart enlargement on CXR, and clinical or radiological evidence of HF Graded by Kuschnir grading system	IND: 46.3 (31-66)* CCC: -G1: 56.3 (37-71)* -G2: 54.5 (41-74)* -G3: 61.8 (43-82)* *Given as median (range)	IND: 12 males CCC: 35 males
Albareda 2015	Chagas disease Section, Cardiology Department, Hospital Interzonal General de Agudos Eva Perón, Argentina	Cross-sectional	IND (n=13): seropositive individuals with normal ECG and CXR CCC: -G1 (n=12): seropositive patients with normal CXR but abnormal ECG (G1, n=12) -G2-3 (n=12): seropositive patients with abnormal ECG, heart enlargement on CXR, and clinical or radiological evidence of HF Graded by Kuschnir grading system	IND: 50±6 CCC: -G1: 49±14 -G2-3: 56±11	-
Almeida 2018	Patients from Ambulatório de Doença de Chagas e Insuficiência Cardíaca do Pronto Socorro Cardiológico de Pernambuco (PROCAPE), Brazil	Cross-sectional	IND (n=17): seropositive individuals with no cardiac symptoms or alterations CCC: -CARD1 (n=20): seropositive individuals with mild cardiac disease, showing alterations in ECG or echocardiogram with preserved global ventricular function (Stage B1 of I Latin American Guidelines for the Diagnosis of Treatment of Chagas' Heart Disease) -CARD2 (n=11): seropositive individuals with severe cardiac disease, with ventricular dysfunction and prior or current symptoms of heart failure (Stage C)	-	IND: 6 males CCC: -CARD1: 7 males -CARD2: 6 males
Alves 2009	Outpatient Unit of the Group for Studies into Chagas' Disease (GEDoCh and Clinical Hospital of Campinas State University (HC/UNICAMP), Brazil	Cross-sectional	IND (n=9): unspecified CCC (n=42): unspecified	IND: 2 individuals over 67 years old CCC: 15 individuals over 67 years old	IND: 3 males CCC: 25 males

Aparecida 2010	Patients at the UNICAMP University Hospital, Brazil	Cross-sectional	IND (n=30): seropositive, asymptomatic individuals with normal thorax radiography, ECG, and echocardiography and absence of esophageal and/or colonic involvement CCC: -Mild cardiopathy (n=30): seropositive individuals with at least one of the following: null or mild symptoms, AV first-degree block, intraventricular conduction abnormalities (defined as RBBB and/or left anterior hemiblock, isolated and unifocal atrial extrasystole, isolated and unifocal ventricular extrasystole) -Severe cardiopathy (n=28): seropositive individuals with at least one of the following: evidence exertional dyspnea, AV second-degree or third-degree block, multifocal atrial extrasystole, multifocal ventricular extrasystole, atrial fibrillation, presence of systolic dysfunction defined by echocardiography, cardiac hypertrophy defined by echocardiography, evidence of thromboembolic disease with characterized cardiac emboli source in echocardiography	IND: 36.09 ± 7.31 (females); 40.26 ± 12.2 (males) CCC: -Mild cardiopathy: 43.42 ± 11.73 (females); 44.22 ± 9.86 (males) -Severe cardiopathy: 53.11 ± 6.7 (females); 48.63 ± 10.86 (males)	IND: 19 males CCC: 37 males
Apt 2015	Patients in the IV region (Coquimbo), Chile	Cross-sectional	IND (n=50): patients with chronic Chagas disease and no ECG alterations CCC (n=50): patients with chronic Chagas disease and ECG alterations, with other important causes of cardiopathy excluded	IND: 49.6 (20-76) CCC: 58.3 (30-81) CCC patients were older than IND patients (p=0.001).	IND: 10 males CCC: 20 males
Apt 2016	Patients from the provinces of Choapa and Limarí, Chile	Cross-sectional	IND (n=100): patients with chronic Chagas disease and no ECG alterations CCC (n=100): patients with chronic Chagas disease and ECG alterations, with other important causes of cardiopathy excluded	IND: 50.55 ± 13.04 CCC: 56.45 ± 12.37 CCC patients were older than IND patients (p=0.0012).	IND: 21 males CCC: 32 males
Apt 2019	Individuals in the Coquimbo Region, Chile	Cross-sectional	IND (n=45): seropositive individuals with a normal ECG CCC (n=45): seropositive individuals with ECG changes	IND: 47.1 (20-76) CCC: 57.8 (30-79) CCC patients were older than IND patients (p<0.001).	IND: 34 males CCC: 32 males
Araujo-Jorg 2002	Patients at the Instituto de Pesquisa Clínica Evandro Chagas, Rio de Janeiro, Brazil	Cross-sectional	IND (n=22): seropositive individuals with NYHA functional class I CCC: -Card 1 (n=34): seropositive individuals with ECG changes and slight or no heart dysfunction (NYHA functional class II) -Card 2 (n=17): seropositive individuals with ECG and/or ECO changes and moderate to severe heart dysfunction (NYHA functional classes III-IV)	IND: 48.4 ± 10 CCC: -Card 1: 50.5 ± 9 -Card 2: 48.8 ± 11	-
Arguello 2012	Patients at the Chagas disease Section of Hospital Interzonal General de Agudos “Eva Perón,” Buenos Aires, Argentina	Cross-sectional	IND (n=48): seropositive individuals with normal ECG and CXR CCC: -G1 (n=10): seropositive patients with normal CXR but abnormal ECG -G2 (n=12): seropositive patients with abnormal ECG and heart enlargement on CXR -G3 (n=17): seropositive patients with abnormal ECG, heart enlargement on CXR, and clinical or radiological evidence of HF	IND: 50 (35-67) CCC: -G1: 48 (36-56) -G2: 51 (42-64) -G3: 55 (46-68) Mean ages were not significantly different between groups.	-

Ayo 2015	Individuals in the State of Parana, Brazil treated at the University Hospital of Londrina and the Chagas Disease Laboratory of the State University of Maringa	Subset of case control study	IND (n=87): seropositive individuals without the below ECG changes CCC (n=44): seropositive individuals with ECG changes characteristic of Chagas disease (such as RBBB, left anterior hemi-block, unspecific ventricular repolarization disorders and ventricular and supraventricular premature beats)	IND: 59.0 ± 9.0 CCC: 63.3 ± 10.5	IND: 34 males CCC: 25 males
Batista 2018	Patients from Ambulatório de Doença de Chagas e Insuficiência Cardíaca do Pronto Socorro Cardiológico de Pernambuco (PROCAPE), Brazil	Cross-sectional	IND (n=110): seropositive individuals without cardiac symptoms and with normal ECG and ECHO CCC: -Mild cardiopathic (n=163): seropositive individuals with structural heart disease, as evidenced by ECG or ECHO, but with normal global ventricular function and neither current nor previous signs and symptoms of CHF -Severe cardiopathic (n=133): seropositive individuals with ventricular dysfunction and current or previous symptoms of CHF	IND: 51 ± 12 CCC: -Mild cardiopathic: 60 ± 13 -Severe cardiopathic: 60 ± 11	-
Bautista-López 2013	Individuals at the Fundación Cardiovascular de Colombia (FCV), Bucaramanga, Colombia from 2002-2006	Cross-sectional	IND (n=46): seropositive, asymptomatic patients with normal ECG, ECHO, and CXR CCC: -Group 2 (n=49): seropositive patients with abnormal ECG but normal ECHO and CXR -Group 3 (n=49): seropositive patients with severe ventricular arrhythmias and dilated cardiomyopathy on CXR, with or without evidence of CHF on ECHO	IND: 41 ± 1 CCC: -Group 2: 45 ± 1 -Group 3: 56 ± 1 Individuals in group 2 and 3 were older than IND individuals ($p<0.05$ for both).	IND: 26 males CCC: 51 males
Bravo-Tobar 2015	Individuals from Unda municipality, Venezuela	Cross-sectional	IND (n=35): seropositive, asymptomatic individuals with no ECG or ECHO evidence of cardiac involvement CCC: -Phase II (n=29): seropositive, asymptomatic individuals with ECG or ECHO evidence of cardiac involvement -Phase III (n=18): seropositive individuals with heart failure	IND: 48.4 ± 2.76 CCC: -Phase II: 52.9 ± 2.88 -Phase III: 67.22 ± 3.25 Individuals in Phase III were older than individuals in other groups.	IND: 12 males CCC: 19 males There was no significant association between sex and clinical phase.
Cetron 1993	Individuals in Fortaleza, Brazil from 1990-1992	Subset of a case-control study	IND (n=12): seropositive individuals who were asymptomatic (free of overt signs or symptoms of cardiac or mega-gastrointestinal disease) CCC (n=45): seropositive individuals who were symptomatic (palpitations, dyspnea, syncope, or pulmonary embolus) with documented ECG changes and a CXR or ECHO consistent with chagasic cardiomyopathy as determined by a cardiologist	IND: 37* CCC: 44* *Median	- Groups were comparable with regard to sex.
Chaves 2016	Patients at the Referral Outpatient Center for Chagas Disease at the Clinics Hospital of the Federal University of	Cross-sectional (nested in prospective cohort study)	IND (n=15): asymptomatic, seropositive individuals with no significant alterations in ECG, CXR, and ECHO CCC (n=15): seropositive individuals with dilated cardiomyopathy	IND: 39.6 ± 10.3 CCC: 48 ± 12.52	-

	Minas Gerais, Brazil				
Clark 2015	A community-based survey in the Bolivian Chaco and a hospital-based study of heart disease in Santa Cruz, Bolivia	Cross-sectional	IND (n=21): seropositive individual with normal ECG and CXR CCC: -Stage B (n=20): seropositive individual with abnormal ECG but normal CXR or ECHO and no signs of CHF -Stage C (n=27): seropositive individual with abnormal ECG and indication of increased left ventricular size and/or decreased left ventricular ejection fraction on CXR or ECHO Abnormal ECG was defined by the presence of RBBB, LAFB, LPFB, LBBB, incomplete RBBB, AV block, junctional rhythm, multifocal or paired ventricular premature beats, atrial fibrillation or flutter, or bradycardia (50 beats/minute).	IND: 33 (26-37)* CCC: -Stage B: 39 (33-44)* -Stage C: 50 (46-57)* *Median (IQR)	IND: 3 males CCC: 21 males
Costa 2009	Patients in Minas Gerais, Brazil	Cross-sectional	IND (n=58): asymptomatic, seropositive individuals with no cardiac alterations by EKG, ECHO, or CXR CCC: -Nondilated cardiac (n=44): seropositive individuals with cardiac alterations such as right and/or left branch blockage and different degrees of conductive functional alterations but no heart dilation -Dilated cardiac (n=53): seropositive individuals with severe cardiomyopathy with heart enlargement	IND: 44.4 ± 9.8 CCC: -Nondilated cardiac: 45.5 ± 9.6 -Dilated cardiac: 50.2 ± 11.3	IND: 27 males CCC: 48 males
Curvo 2018	Patients at the outpatient service of the Evandro Chagas National Institute of Infectious Diseases in Brazil	Cross-sectional	IND (n=53): seropositive individuals with no evidence of cardiac involvement CCC: -Stage A (n=24): asymptomatic, seropositive individuals with isolated ECG changes -Stage B (n=25): asymptomatic, seropositive individuals with segmental or global LV systolic dysfunction -Stages C and D (n=50): seropositive individuals who are symptomatic (stage C) or have end-stage heart failure (heart D)	IND: 52 ± 11 CCC: -Stage A: 62 ± 11 -Stage B: 60 ± 9 -Stages C and D: 58 ± 13 CCC patients were older than IND patients ($p<0.05$).	IND: 24 (45.3%) males CCC: -Stage A: 8 (33.3%) males -Stage B: 8 (32.0%) males -Stages C and D: 26 (52%) males An association between the presence of dilated cardiomyopathy and male sex was observed.
Cutrullis 2013	Patients at the Cardiology units of the Hospital General de Agudos Dr. Cosme Argerich and Hospital General de Agudos José María Ramos Mejía in Buenos Aires, Argentina	Cross-sectional	IND (n=14): Kuschnir G0; seropositive individuals with normal ECG, ECHO, and CXR findings CCC (n=12): Kuschnir G3; seropositive individuals with ECG and ECHO abnormalities, conduction defects, heart enlargement, and clinical or radiological evidence of heart failure	IND: 51.9 ± 1.7 CCC: 56.3 ± 6.8 CCC patients were older than IND patients ($p<0.05$).	IND: 4 males CCC: 11 males CCC patients were more likely to be male than IND patients ($p<0.0001$).

D'Ávila 2009 (Mem Inst)	Patients in Brazil	Cross-sectional	IND (n=27): seropositive individuals with no clinical manifestations of disease CCC (n=16): seropositive individuals with dilated cardiomyopathy identified via ECG, CXR, Holter, and echodopplercardiography	IND: 39.4 ± 13.8 CCC: 45.0 ± 10.0	IND: 10 males CCC: 7 males
D'Ávila 2009 (JCM)	Patients in the states of Minais Gerais and Goiás, Brazil	Cross-sectional	IND (n=27): seropositive individuals with no ECG abnormalities and regular heart, esophagus, and colon sizes on X ray CCC (n=17): seropositive individuals with cardiac involvement as determined by ECG, radiographs, and Doppler echocardiography	IND: 37.9 ± 11.7 CCC: 44.1 ± 10.4	IND: 10 males CCC: 7 males
D'Ávila 2018	Patients in Minais Gerais, Brazil	Cross-sectional	IND (n=23): seropositive, asymptomatic individuals CCC (n=68): determined by protocol including medical history, physical examination, ECG, laboratory and CXR examinations, and ECHO	IND: 44 ± 10.3 CCC: 54 ± 10.3	IND: 8 males CCC: 45 males
De Melo 2012	Patients at the Chagas Disease Unit of the Oswaldo Cruz University Hospital, Pernambuco, Brazil	Cross-sectional	IND (n=20): seropositive individuals without alteration in ECG, CXR, ECHO, esophagogram or barium enema CCC: -CARD 1 (n=10): seropositive individuals with chronic Chagas-related cardiopathy but no cardiac dilatation and an EF>55% on ECHO -CARD 2 (n=10): seropositive individuals with chronic Chagas-related cardiopathy, clinical and/or echocardiographic and radiological signs of heart enlargement, and an EF<40% on ECHO	IND: 32-68* CCC: 43-74* *Range	IND: 9 men CCC: 10 males
De Moura Braz 2014	Patients from Ambulatório de Doença de Chagas e Insuficiência Cardíaca do Pronto Socorro Cardiológico de Pernambuco (PROCAPE), Brazil from 2010-2011	Cross-sectional	IND (n=20): asymptomatic, seropositive individuals with clinical tests (ECG, CXR, and echodopplercardiography for all patients; oesophagogram and barium enema when disease suspected) showing no alteration CCC (n=11): seropositive individuals with clinical and/or echocardiographic and radiological signs of heart enlargement (cardiac dilatation and/or EF <40%) and absence of complaints/alterations in digestive system (dysphagia and/or odynophagia)	IND: 32-75* CCC: 43-75* *Range	IND: 7 males CCC: 7 males
Del Puerto 2010	Patients from the Centro Nacional de Enfermedad Tropicales (CENE-TROP) and inpatients and past patients at the Hospital Universitario Japonés (HUJ) in Santa Cruz, Bolivia	Cross-sectional	IND: -Group 1 (n=73): seropositive individuals aged ≥30 years with no ECG or gastrointestinal abnormalities on barium enema -Group 2 (n=41): seropositive individuals aged ≥30 years with colon enema X-ray not performed CCC: -Group 3 (n=43): seropositive individuals with ECG abnormalities and no gastrointestinal abnormalities on barium enema -Group 4 (n=21): seropositive individuals with ECG abnormalities and colon enema X-ray not performed	IND: -Group 1: 42.3 ± 8.5 -Group 2: 42.9 ± 9.6 CCC: -Group 3: 38.5 ± 9.8 -Group 4: 40.6 ± 10.4	IND: 50 males CCC: 32 males

Dias 2013	Patients in Brazil	Cross-sectional	IND (n=81) CCC (n=90) Clinical stage determined by clinical examination, ECG, and chest, esophagus, and colon contrast X-ray exams. IND patients had this clinical form for at least 20 years.	IND: 55.0 ± 17.1 CCC: 64.9 ± 15.3	IND: 48 males CCC: 47 males
Echeverría 2020	Patients in the Heart Failure service at the Cardiovascular Foundation of Colombia from 2015-2017; excluded patients with uncontrolled hypertension, diabetes mellitus, history of coronary heart disease, and mitral stenosis	Cross-sectional	IND (n=96): seropositive individuals with normal ECG and LVEF (>55%) CCC: -Stage B (n=50): seropositive individuals with ECG abnormalities consistent with Chagas cardiomyopathy without signs or symptoms or heart failure regardless of global ventricular function -Stage C (n=55): seropositive individuals with ECG abnormalities consistent with Chagas cardiomyopathy, LVEF <55%, and current or previous symptoms of HF -Stage D (n=72): seropositive individuals with ECG abnormalities consistent with Chagas cardiomyopathy, LVEF <55%, and refractory symptoms of HF at rest despite optimized clinical treatment	IND: 51 (44-56)* CCC: -Stage B: 55 (46-64)* -Stage C: 59 (54-66)* -Stage D: 64 (56-70)* *Median (IQR) There was an increase in age across CCC stages compared to IND patients (p<0.001).	IND: 33 males CCC: 98 males
Fabbro 2011	Patients at the Center for Research in National Endemic Diseases with good clinic attendance and no immunologic or congenital rheumatic cardiac disease in Santa Fe, Argentina	Retrospective observational	IND (n=37): Kuschnir G0; asymptomatic, seropositive individuals with normal ECGs and chest radiographs CCC (n=11): Kuschnir G1-3; seropositive individuals with any of the following ECG alterations (complete RBBB and LAFB in persons <50 years of age, frequent ventricular extrasystole, ventricular extrasystole associated with conduction disorders, second-degree or complete AV block, or electrical inactivation areas (no antecedents of ischemic cardiopathy)	IND: 32.2 ± 9.8 CCC: 35.4 ± 8.1	IND: 11 males CCC: 6 males
Faé 2000	Outpatients at the Heart Institute at the University of São Paulo School of Medicine, Brazil	Cross-sectional	IND (n=66): seropositive individuals with normal ECG and EF ≥0.65 on ECHO CCC (n=144): seropositive individuals with ECG alterations and/or reduced EF	IND and CCC groups were age-matched.	IND: 28 males CCC: 87 males
Fares 2013	Patients at the Referral Outpatient Center for Chagas Disease at the Clinical Hospital of the Federal University of Minas Gerais, Minas Gerais, Brazil and at Evandro Chagas Clinical Research Institute at Fundação Oswaldo Cruz-Rio de Janeiro, Rio de Janeiro, Brazil	Cross-sectional (nested in prospective cohort)	IND (n=23): seropositive individuals with no significant alterations in their ECGs, CXRs, ECHOs, esophagograms, and barium enemas CCC (n=27): seropositive individuals with dilated cardiomyopathy and heart failure	IND: 53 ± 17 CCC: 52 ± 17	-

Fernandes 2007	Patients at the Cardiomyopathy Clinical Unit of the Heart Institute, University of São Paulo Medical School, Brazil; excluded patients with myocardial infarction, valvar disease, and hypertension		IND (n=24): seropositive individuals with no cardiac involvement as defined by CXR, ECG, and ECHO and normal barium studies of the esophagus and colon CCC: -Group II (n=14): seropositive individuals with normal LV function showing right or left bundle branch block, LAFB, diffuse St-T changes, ventricular premature beats that may be multiform, and runs of non-sustained ventricular tachycardia on ECG -Group III (n=14): seropositive individuals with symptoms of CHF and LV dysfunction evaluated by ECG	IND: 48.4 ± 10.8 CCC: -Group II: 42.9 ± 8.1 -Group III: 47.8 ± 9.1	-
Fernández -Mestre 2002	Patients at the José Francisco Torrealba Research Center at San Juan de los Morros, Estado Guárico, Venezuela	Cross-sectional	IND (n=11): seropositive, asymptomatic individuals CCC: -Group B (n=7): seropositive individuals with arrhythmias -Group C (n=5): seropositive individuals with overt CHF	IND: 61 CCC: -Group B: 58 -Group C: 62 Standard deviations not provided.	-
Ferreira 2017	Patients identified by blood bank screening in 1996-2002 from the State of Minas Gerais and patients from the Heart Institute of the University of São Paulo Medical School, Brazil	Subset of a retrospective cohort study	IND: Seropositive individuals with no changes in ECG or ECHO findings and no clinical signs of digestive disease -Positive *T. cruzi* PCR (n=30) -Negative *T. cruzi* PCR (n=30) CCC: -Moderate (n=30): seropositive individuals with CCC with a preserved LVEF -Severe (n=30): seropositive individuals with CCC with a significantly reduced LVEF (≤40%)	IND: -Positive PCR: 47 ± 12 -Negative PCR: 40 ± 9 CCC: -Moderate: 50 ± 8 -Severe: 46 ± 10	-
Ferreira 2003	Patients at the Heart Institute of the University of São Paulo Medical School, Brazil	Cross-sectional	IND (n=27): seropositive individuals with a normal ECG and ECHO CCC: -LVEF >50% (n=52): seropositive individuals with CCC and LVEF >50% -LVEF ≤50% (n=27): seropositive individuals with CCC and LVEF ≤50%	IND: 54 ± 10.9 CCC: -LVEF >50%: 53 ± 10.4 -LVEF ≤50%: 54.2 ± 14.1	IND: 0.5 male/female ratio CCC: -LVEF >50%: 0.76 male/female ratio -LVEF ≤50%: 1.7 male/female ratio
Ferreira 2018	Patients at the Evandro Chagas National Institute of Infectious Diseases in Brazil without cardiac comorbidities, autoimmune disease, or cancer	Cross-sectional	IND (n=53): seropositive individuals with no evidence of cardiac involvement CCC: -Cardiac A+B (n=49): asymptomatic, seropositive individuals with isolated ECG changes (stage A) or segmental or global LV systolic dysfunction on ECHO (stage B) -Cardiac C+D (n=50): seropositive individuals with symptomatic heart failure (stage C) or end-stage heart failure (stage D)	IND: 52 ± 11 CCC: -Cardiac A+B: 61 ± 10 -Cardiac C+D: 58 ± 13	IND: 24 males CCC: 42 males

Flórez 2011	Patients from Santander, Colombia	Cross-sectional	IND (n=130): seropositive individuals without cardiac symptoms and with normal ECGs CCC (n=130): seropositive individuals with evidence of conduction alterations and/or structural cardiomyopathy by clinical evaluation, ECG, ECHO, and 24-hour Holter	IND: 48.6 CCC: 56.5 No standard deviations provided.	The sex distribution was similar between groups (details not provided).
Flórez 2006	Patients from Santander, Colombia	Cross-sectional	IND (n=130): seropositive individuals without cardiac symptoms and with normal ECGs CCC (n=130): seropositive individuals with evidence of conduction alterations and/or structural cardiomyopathy by clinical evaluation, ECG, ECHO, and 24-hour Holter	IND: 48.6 CCC: 56.5 No standard deviations provided.	The sex distribution was similar between groups (details not provided).
Frade 2013 (BMC)	Patients in the Sao Paulo, Minas Gerais and Bahia states in Brazil	Cross-sectional	IND (n=118): seropositive individuals with no ECG or ECHO changes CCC (n=315): seropositive individuals with typical conduction abnormalities (RBBB and/or left anterior division hemiblock)	-	IND: 45.3% male CCC: 61.3% male Males were more common in the CCC than IND group (p=1.21E-4).
Frade 2013 (PLoS ONE)	Patients in the Sao Paulo, Minas Gerais and Bahia states in Brazil (same study population as Frade 2013, BMC)	Cross-sectional	IND (n=118): seropositive individuals with no ECG or ECHO changes CCC (n=315): seropositive individuals with typical conduction abnormalities (RBBB and/or left anterior division hemiblock)	-	IND: 45.3% male CCC: 61.3% male Males were more common in the CCC than IND group (p=1.21E-4).
Garcia-Alvarez 2010	Patients originally from endemic countries living in Spain with no co-infections, diabetes mellitus, or other heart disease from 2008-2009	Prospective cohort study	IND (n=32): seropositive individuals without any abnormal ECCG finding, normal LV dimensions and LV global and regional systolic function on ECHO CCC: -Group 2 (n=14): seropositive individuals with typical ECG abnormalities of cardiac involvement such as complete RBBB and/or left anterior hemiblock, complete LBBB, ventricular premature beats, primary abnormalities of ventricular repolarization, electrically inactive zones, low voltage QRS, sinus bradycardia <50 beat/min, advanced AV block or cardiac pacemaker, but normal LV dimensions and global and regional systolic function on ECHO -Group 3 (n=8): seropositive individuals with Chagas cardiomyopathy with any regional wall motion abnormality and/or LV end-diastolic diameter >55 mm and/or LVEF <50% on ECHO	IND: 36.8 (14.6)* CCC: -Group 2: 42.7 (17.4)* -Group 3: 40.9 (8.6)* *Median (IQR)	IND: 13 males CCC: 10 males
Garg 2016	Patients in Salta, Argentina	Cross-sectional	IND (n=25): seropositive individuals with no to minor ECHO abnormalities, no LV dilatations, and preserved systolic function (EF: 55-70%) CCC (n=28): seropositive individuals with varying degrees of heart involvement evidenced by systolic dysfunction (EF<55%), LV dilatation (diastolic diameter ≥57 mm), and/or potential signs of CHF	IND: 49.8 ± 9.2 CCC: 53.1 ± 10.6	IND: 14 (46.6%) males CCC: 16 (53.3%) males

Gasparim 2018	Subjects at the 15th Regional Department of Public Health in Paraná, Brazil from 2015-2016	Cross-sectional	IND (n=82) CCC (n=98) CCC patients underwent physical exam and CXR; other causes of cardiomegaly were excluded.	IND: 2 age ≤44, 3 age 45-54, 13 age 55-64, 18 age 65-74, 6 age ≥75 CCC: 1 age ≤44, 2 age 45-54, 15 age 55-64, 28 age 65-74, 18 age ≥75	-
Gazzinelli 1990	Patients in Minas Gerais, Brazil	Cross-sectional	IND (n=17) CCC (n=15): cardiac disturbances of variable degrees Clinical stage determined by physical examination, CXR, and ECHO.	IND: 38 ± 16 CCC: 45 ± 12	-
Gazzinelli 1988	Patients in Minas Gerais, Brazil	Cross-sectional	IND (n=12) CCC (n=16): cardiac disturbances of variable degrees Clinical stage determined by physical examination, CXR, and ECHO.	IND: 33 ± 14 CCC: 38 ± 12	-
Georg 2017	Non-pregnant patients at the Instituto Nacional de Infectologia Evandro Chagas, Fiocruz, Rio de Janeiro, Brazil	Observational retrospective longitudinal	IND (n=20): patients in the indeterminate form without progression to CCC during follow-up CCC (n=35): patients with stable or progressive CCC (abnormal EKG and ECHO)	IND: 49.20 ± 10.54 CCC: 60.89 ± 12.03 The mean age of CCC patients was higher than that of IND patients (p=0.0007).	IND: 8 (40%) males CCC: 20 (57%) males There was no significant difference in sex between groups.
Giménez 2003	Patients in Argentina without cardiovascular risk factors, alcoholism, endocrinopathy, or other disease with cardiac manifestations	Cross-sectional	IND (n=47): clinically normal without ECG or thorax radiography alterations CCC (n=35): seropositive individuals with cardiopathy (per Chagas Disease Council “Dr. Salvador Mazza”)	IND: 41.4 ± 2.3 CCC: 42.5 ± 2.3	IND: 15 males CCC: 10 males
Giraldo 2013	Patients at the Fundación Abood Shaio, Hospital Universitario San Ignacio, Instituto Nacional de Salud, and Department of Cardiology, Hospital Universitario San Ignacio, Bogotá, Colombia	Cross-sectional	IND (n=21): chagasic patients with non-structural cardiac damage (normal ECHO findings and NYHA 1, with normal or abnormal ECG findings) CCC (n=21): chagasic patients with structural cardiac damage; abnormal ECG findings, increased heart size, decreased LVEF, and NYHA II-IV	IND: 49.1 (37-65)* CCC: 55.4 (40-72)* *Median age (range)	IND: 5 males CCC: 10 males

Gomes 2012	Patients at the Outpatient Referral Center for Chagas Disease of the Hospital das Clínicas at the Federal University of Minas Gerais, Brazil	Cross-sectional	IND (n=5): asymptomatic, seropositive individuals with no clinical manifestations of disease CCC (n=6): seropositive individuals with cardiac dysfunction and dilated cardiomyopathy, assessed by ECG, 24-hour Holter examination and CXR	IND: 42.5 ± 5.5 CCC: 44.0 ± 8.7	IND: 4 males CCC: 1 male
Gomes 2018	Patients in Minas Gerais, Brazil	Cross-sectional	IND (n=8): asymptomatic, seropositive individuals with no clinical manifestations of disease CCC (n=13): seropositive individuals with cardiac dysfunction and dilated cardiomyopathy, assessed by ECG, 24-hour Holter examination and CXR	-	IND: 3 males CCC: 5 males
Gomes 2016	Patients from in Brazil from 2010-2013	Subset of a prospective observational study	IND (n=83): chagasic patients with no evidence of cardiac involvement CCC (n=42): chagasic patients with isolated ECG changes and no heart failure symptoms	IND: 44 ± 9 CCC: 47 ± 8	IND: 46% males CCC: 38% males
Gómez-Olarte 2019	Patients at the Failure and Heart Transplantation Clinic in the Hospital Universitario San Ignacio, Colombia	Cross-sectional	IND (n=14): asymptomatic chagasic individuals (stage A), including those with non-structural cardiac damage (stage B) CCC: -Stage C or D (n=14): chagasic patients with cardiomyopathy -Transplant (n=9): chagasic patients who had received a heart transplant	IND: 49.7 ± 9.8 CCC: -Stage C or D: 63.6 ± 8.8 -Transplant: 60.8 ± 8.5 IND patients had a lower mean age than CCC patients did (p=0.0107).	IND: 43% males CCC: -Stage C and D: 50% males -Transplant: 56% males
González 2014	Individuals in Venezuela in 2008	Prospective observational study (1 year follow-up)	IND (n=34): individuals with a functional exam, pathologic history, clinical exam, and ECG not suggestive of cardiac pathology CCC (n=81): individuals whose ECG and/or ECHO showed signs of cardiac pathology (such as rhythm disorders, conduction disorders, ventricular repolarization disorders, hypertrophy or growth of the cavity of walls, ventricular movement disorders, cardiomegaly, moderate of severe diastolic dysfunction, systolic dysfunction, or reduced EF)	IND: 20.9% were >50 years CCC: 79% were >50 years	IND: 12 males CCC: 44 males
González 2018	Patients the Chagas Section of the Cardiology Service of Hospital Provincial del Centenario de Rosario, Argentina without comorbidities	Subset of a case-control study	IND (n=84): seropositive individuals with normal ECG and CXR CCC: -Mild to moderate (n=55): seropositive individuals with no CHF and ECG showing any of the following: incomplete or complete RBBB, first degree AV block or non-life-threatening arrhythmias or a CXR cardiothoracic ratio <0.55 -Severe (n=51): seropositive individuals with major ECG pathological tracings (complex ventricular arrhythmia or complete AV block), CHF and a CXR cardiothoracic ratio >0.55	IND: 45.3 ± 1.4 CCC: -Mild to moderate: 52.2 ± 1.7 -Severe: 52 ± 1.7	IND: 28 males CCC: 26 males

Guedes 2016	Patients from Rio Grande do Norte, Brazil from 2011-2013 excluding patients over 70 years of age or with diabetes, sustained ventricular tachycardia or ventricular fibrillation, an implanted cardiac pacemaker, or non-chagasic cardiomyopathy	Cross-sectional	IND (n=18) CCC (n=17) Stage determined by serology and ECG, CXR, contrasted x-rays of the esophagus and colon, ECHO, and 24-hour Holter exam according to the Brazilian Consensus	IND: 41.4 ± 10.7 CCC: 49.7 ± 11.8	IND: 10 (55.5%) males CCC: 11 (64.7%) males
Gusmão 1982	Patients at Goias University Hospital and two private practices in Brazil	Cross-sectional	IND (n=46): seropositive individuals with normal heart size, EKG, barium swallow, and barium enema CCC: -Mild (n=21): seropositive individuals with complete RBBB, left anterior hemiblock, unifocal premature ventricular beats, or low or flat T waves -Moderate (n=20): seropositive individuals with RBBB and premature ventricular beats, left anterior hemiblock and premature ventricular beats, complete AV block, or low or flat T waves with premature ventricular beats -Severe (n=15): seropositive individuals with cardiomegaly and ECG alterations	IND: 36 (18-73)* CCC: -Mild: 41 (31-59)* -Moderate: 44 (33-75)* -Severe: 42 (19-67)* *Mean (range)	IND: 27 males CCC: 28 males
Heringer-Walther 2006	Patients from the Heart Failure Center of the Felicio Rocho Hospital, Brazil from 2001-2004	Prospective cohort	IND (n=34): Chagas disease without ventricular dysfunction (LVEF >50%) CCC: -Group 2 (n=18): Chagas disease with ventricular systolic dysfunction (LVEF <50%) in NYHA classes I-II -Group 3 (n=14): Chagas disease with ventricular systolic dysfunction (LVEF <50%) in NYHA classes III-IV	IND: 51.7 ± 1.9 CCC: -Group 2: 50.9 ± 1.9 -Group 3: 50.5 ± 2.7	IND: 8 males CCC: 13 males
Higuchi 2009	Endomyocardial biopsies from patients at the Heart Institute of Sao Palo, Brazil from 1980-2001	Retrospective observational	IND (n=7) CCC (n=17): heart failure Definitions not specified	IND: 34 ± 11 CCC: 37 ± 12	IND: 3 males CCC: 11 males
Higuchi 2018	Serum samples from Chagas disease patients collected from 2008-2016 at the Instituto de Coraçao, Hospital das Clinicas HCFMUSP, University of Sao Paulo, Brazil	Retrospective observational	IND (n=21): asymptomatic, seropositive individuals with a normal ECG, CXR with no evidence of cardiac enlargement, EF >60%, and no esophagus or colon enlargement by contrasted exams CCC (n=25): chagasic patients with LVEF <35%	IND: 60 ± 12 CCC: 49 ± 10	IND: 9 males CCC: 20 males

Iosa 1989	Patients from Argentina	Cross-sectional	IND (n=10): asymptomatic, seropositive individuals with normal ECGs and CXRs CCC: -Group II (n=8): seropositive individuals with abnormal ECGs with arrhythmias, RBBB and/or left anterior hemiblock, normal CXR, and no signs or symptoms of CHF -Group III (n=8): seropositive individuals with abnormal ECG findings, severe cardiomegaly on CXR, and signs and symptoms of CHF (NYHA class III-IV)	IND: 42 ± 8 CCC: -Group II: 46 ± 14 -Group III: 50 ± 9	-
Juiz 2019	Individuals in the Argentinean Gran Chaco Region and patients of health centers in Buenos Aires from 2012-2017	Case-control study	Non-Wichi: -IND (n=166) -CCC (n=170) Wichi: -IND (n=99) -CCC (n=45) CCC: demonstrated cardiomyopathy; seropositive individuals with clinical symptoms and ECG alterations IND: seropositive individuals with chronic infection but lacking clinical symptoms with no obvious pathological signs during the cardiovascular physical exam and normal complementary studies (ECG, stress test, etc.) Individuals were divided by Wichi heritage.	Non-Wichi: -IND: 51.30 ± 15.15 -CCC: 54.14 ± 12.76 Wichi: -IND: 35.43 ± 14.04 -CCC: 38.40 ± 14.72	IND: 122 males CCC: 119 males
Kaplinski 2015	Women presenting for delivery at the Hospital Universitario Japonés in Santa Cruz and Hospital Municipal Camiri in Camiri, Bolivia	Cross-sectional	IND (n=274): seropositive individuals without ECG alterations consistent with Chagas cardiomyopathy CCC (n=28): seropositive individuals with ECG alterations consistent with Chagas cardiomyopathy (complete right or left bundle branch block, left anterior or posterior fascicular block, complex or multiform ventricular premature beats, AV blocks in absence of drugs slowing AV conduction, sinus bradycardia <45 beats/minute or sinus pauses >3.0, atrial fibrillation, junctional rhythm, or complex ventricular arrhythmias [multiform, couplets, or nonsustained ventricular tachycardia])	IND: 27 (22-34)* CCC: 32 (24-39)* *Median (IQR)	-
Keating 2015	Seropositive blood donors identified by blood bank screening in Minas Gerais, Brazil from 1996-2002 and previously diagnosed cases of CCC from the Heart Institute of the University of Sao Paulo Medical School	Case-control study	IND (n=341): seropositive blood donors without CCC, assessed by ECG and ECHO CCC: -Diagnosed Chagas cardiomyopathy (n=101): previous physician diagnosis of CCC with confirmed seropositivity and no comorbidities such as diabetes, hypertension, or renal failure -Chagasic blood donors with CCC (n=109): seropositive individuals with CCC, assessed by ECG and ECHO	IND: 3 age 0-29, 73 age 30-39, 110 age 40-49, 101 age 50-59, 54 age 60+ CCC: -Diagnosed Chagas cardiomyopathy: 1 age 0-29, 8 age 30-39, 46 age 40-49, 46 age 50-59, 0 age 60+ -Chagasic blood donors with CCC: 0 age 0-29, 23 age 30-39, 34 age 40-49, 29 age 50-59, 23 age 60+	IND: 169 males CCC: 127 males
Khan 2016	Patients from the Heart Failure Centre of Felicio-Rocho Hospital, Brazil from 2001-2005	Prospective cohort	IND (n=46): Chagas disease without systolic ventricular dysfunction (LVEF >50%) CCC: -Group 2 (n=25): Chagas disease with ventricular systolic dysfunction (LVEF <50%) in NYHA classes I-II	IND: 52.0 ± 1.5 CCC: -Group 2: 50.6 ± 2.3 -Group 3: 48.9 ± 1.9	IND: 11 males CCC: 23 males

			-Group 3 (n=22): Chagas disease with ventricular systolic dysfunction (LVEF <50%) in NYHA classes III-IV		
Larocca 2017	Patients at Chagas disease outpatient clinics in Brazil from 2011-2013	Cross-sectional	IND (n=14) CCC: -Without ventricular dysfunction (n=16) -With ventricular dysfunction (n=26) Clinical stage assessed by medical history, physical exam, blood analysis, ECG, CXR, 24-hour Holter monitoring, ECHO, and cardiovascular MRI.	IND: 60 ± 10 CCC: -Without ventricular dysfunction: 56 ± 8 -With ventricular dysfunction: 59 ± 9	IND: 5 males CCC: 18 males
Lassen 2018	Patients at the Chagas and Hypertension Clinics of the Córdoba Hospital in Argentina	Case-control	IND (n=27): asymptomatic, seropositive individuals with no abnormal cardiac symptoms in noninvasive cardiac evaluations CCC (n=103): seropositive individuals whose CXR, ECG, and/or ECHO showed some alteration in conduction and/or structural cardiomyopathy	IND: 61 ± 11 CCC: 62 ± 15	IND: 9 males CCC: 35 males
Lasso 2015	Patients at the Fundación Clínica Abood Shaio, Instituto Nacional de Salud and Hospital Universitario San Ignacio in Bogotá, Colombia	Cross-sectional	IND (n=24): seropositive individuals with normal heart size and LVEF, with normal (stage A) or abnormal ECG findings (stage B), in NYHA class I CCC (n=19): seropositive individuals with abnormal ECG findings and increased heart size, in NYHA class II-IV (stages C-D)	IND: 44 (22-67)* CCC: 44 (34-80)* *Median (range)	IND: 9 males CCC: 12 males
Laucella 1996 (Acta Tropica)	Individuals living in an endemic area in Argentina	Cross-sectional	IND (n=22): seropositive individuals without manifestations of cardiac involvement CCC: -CDP-1 (n=8): seropositive individuals with suspected or borderline cardiac disease -CDP-2 (n=8): seropositive individuals with moderate myocardial dysfunction -CDP-3 (n=15): seropositive individuals with overt cardiac dysfunction Cardiac involvement was assessed by ECG and CXR in all patients, and when possible, ECHO and radionuclide angiography.	IND: 32 ± 12 CCC: -CDP-1: 43 ± 13 -CDP-2: 47 ± 14 -CDP-3: 48 ± 13	IND: 15 males CCC: -CDP-1: 4 males -CDP-2: 3 males -CDP-3: 8 males
Laucella 2001	Individuals living in an endemic area in Argentina	Cross-sectional	IND (n=16): seropositive individuals who were either asymptomatic or had some ECG abnormalities but normal cardiothoracic radiological relation (Kuschnir grade 0-1) CCC (n=11): seropositive individuals with myocardial dysfunction, as measured by clinical or radiological signs of cardiomegaly and/or heart failure (Kuschnir grade 2-3)	IND: 35 ± 9 CCC: 49 ± 13	-
Laucella 1996 (AJTMH)	Individuals living in an endemic area in Argentina	Cross-sectional	IND (n=20): seropositive individuals who were either asymptomatic or had a pathologic CXR or ECG CCC (n=19): seropositive individuals with myocardial dysfunction, as measured by a reduced EF (<0.4), LV enlargement on ECHO, and increased cardiothoracic ratio (>0.51)	IND: 38.8 ± 13.4 CCC: 48.5 ± 12.6	-

Leon Rodriguez 2016 (HLA)	Individuals at the Santander Department, Colombia	Cross-sectional	IND (n=175) CCC (n=401) Clinical stage was assessed by ECG and ECHO information among seropositive individuals.	IND: 58.00 CCC: 63.14 Standard deviations not provided.	-
Leon Rodriguez 2018	Individuals at the Santander Department, Colombia	Cross-sectional	IND (n=336) CCC (n=542) Clinical stage was assessed by ECG and ECHO information among seropositive individuals.	IND: 53.41 CCC: 61.13 Standard deviations not provided.	-
Leon Rodriguez 2016 (PLoS NTD)	Individuals at the Santander Department, Colombia	Cross-sectional	IND (n=175) CCC (n=401) Clinical stage was assessed by ECG and ECHO information among seropositive individuals.	IND: 58.00 CCC: 63.14 Standard deviations not provided.	-
Leon Rodriguez 2016 (Sci Rep)	Individuals at the Santander Department, Colombia	Cross-sectional	IND (n=171) CCC (n=376) Clinical stage was assessed by ECG and ECHO information among seropositive individuals using guidelines from WHO, PAHO, and international Buenos Aires consensus of 2010.	IND: 56.67 CCC: 62.66 Standard deviations not provided.	-
Lidani 2018	Patients at the Chagas' disease Ambulatory of the Clinical Hospital, Federal University of Paraná, Curitiba, Brazil	Cross-sectional	IND (n=35): seropositive individuals with an absence of clinical signs and symptoms of cardiac and digestive involvement and normal chest radiography and ECG CCC (n=43): seropositive individuals with altered ECG, with or without altered ECHO findings and/or heart failure	IND: 55 (36-73)* CCC: 56 (34-81)* *Median (range)	IND: 18 males CCC: 19 males
Llop 1988	Individuals in the towns of Combarbala and Illapel in Chile	Cross-sectional	IND (n=73): seropositive individuals without chagasic cardiomyopathy CCC (n=51): seropositive individuals with chagasic cardiomyopathy	IND: 3 age 21-30, 5 age 31-40, 14 age 41-50, 22 age 51-60, 13 age 61-70, 12 age 71-80, 4 age 81-90 CCC: 2 age 21-30, 6 age 31-40, 9 age 41-50, 16 age 51-60, 6 age 61-70, 10 age 71-80, 2 age 81-90	-
López 2006	Patients at the Chagas outpatient clinic at the Centro Cardiovascular Regional ASCARDIO and the Escuela de Medicina Pablo Acosta Ortiz (Universidad Centroccidental Lisandro Alvarado) in Barquisimeto, Estado Lara, Venezuela	Cross-sectional	IND (n=24): asymptomatic, seropositive individuals with no electrocardiographic or echocardiographic evidence of cardiac involvement CCC: -Phase II (n=20): asymptomatic, seropositive individuals with electrocardiographic or echocardiographic evidence of cardiac involvement -Phase III (n=20): seropositive individuals with heart failure	IND: 56.9 ± 3.0 CCC: -Phase II: 62.7 ± 2.7 -Phase III: 68.3 ± 2.2 A multiple regression analysis found no correlation between age and Chagas disease stage.	IND: 6 males CCC: 24 males A multiple regression analysis found no correlation between sex and Chagas disease stage.

	without ischemic heart disease, liver disease, inflammatory processes, immunosuppression, non-Chagas pericarditis, or primary valve disease				
Lorena 2010	Patients at the Chagas Disease Unit of Oswaldo Cruz University Hospital in Brazil	Cross-sectional	IND (n=9): asymptomatic, seropositive individuals without significant alterations in ECG, CXR, ECHO, oesophagogram, and barium enema (suspicious cases) CCC: -CARD 1 (n=15): seropositive individuals with chronic chagasic cardiomyopathy in NYHA class I-II -CARD 2 (n=15): seropositive individuals with clinical and/or echocardiographic and radiological signs of heart enlargement, in NYHA class III	IND: 30-65* CCC: 35-77* *Range	IND: 4 males CCC: 11 males
Luz 2013	Patients at the Chagas Disease Ambulatory of the Clinical Hospital of the Federal University of Paraná, Brazil	Cross-sectional	IND (n=88) CCC (n=96) Definitions of clinical stages among seropositive individuals not specified	IND: 54.6 (34-76) CCC: 58.9 (34-90) *Mean (range); no standard deviations provided	IND: 61.4% males CCC: 50.0% males
Luz 2016	Patients at the Chagas Disease Ambulatory of the Clinical Hospital of the Federal University of Paraná, Brazil without recent infections or suspected non-chagasic cardiomyopathy	Cross-sectional	IND (n=72): seropositive individuals without cardiac or gastrointestinal disease CCC (n=74): seropositive individuals with altered ECG, with or without abnormal ECHO or reduced EF	IND: 55.7 ± 8.3 CCC: 59.2 ± 10.0	IND: 30.5% males CCC: 48.6% males
Marques 2006	Patients seen at the Chagas' disease outpatient clinic in 2002 in Brazil without heart failure or arrhythmias, hypertension, diabetes mellitus, COPD, endocrine dysfunctions, heart disease of other etiologies, or pregnancy	Cross-sectional	IND (n=50): seropositive individuals with normal ECG CCC: -GIIA (n=31): asymptomatic, seropositive individuals with ECG changes characteristic of Chagas' disease -GIIB (n=25): asymptomatic, seropositive individuals with ECG changes non-characteristic of Chagas' disease	IND: 41 ± 5.6 CCC: -GIIA: 43 ± 4.6 -GIIB: 42 ± 6.8	IND: 21 males CCC: -GIIA: 19 males -GIIB: 11 males
Martín 1987	Individuals from Sante Fe and Santiago del Esterio in Argentina	Cross-sectional	IND (n=25): asymptomatic individuals with normal exam findings CCC (n=23): patients with chronic infection and cardiopathy, as demonstrated by clinical, ECG, and radiological findings	IND: 5 age 10-19, 5 age 20-29, 11 age 30-39, 4 age 40-49 CCC: 1 age 10-19, 4 age 20-29, 9 age 30-39, 2 age 40-49, 5 age 50-59, 2 age 60+	-

Medeiros 2017	Patients at the Referral Outpatient Center for Chagas Disease at the Hospital das Clínicas of Universidade Federal de Minas Gerais, Brazil	Cross-sectional nested in prospective cohort	IND (n=8): asymptomatic, seropositive individuals with no significant alterations in ECG, CXR, ECHO, esophagogram and barium enema CCC (n=10): seropositive individuals with dilated left ventricle and impaired ventricular systolic function (EF <55%) on ECHO	IND: 53 ± 17 CCC: 52 ± 17	-
Medeiros 2019 (Front Immmunol)	Patients at the Alda Falcão Referral Outpatient Center for Chagas Disease at the Instituto René Rachou, Fundaçao Oswaldo Cruz, Belo Horizonte, Brazil	Cross-sectional	IND (n=10): asymptomatic, seropositive individuals with no significant alterations in ECG, CXR, ECHO, esophagogram and barium enema CCC (n=10): seropositive individuals with dilated left ventricle and impaired ventricular systolic function (EF <55%) on ECHO	IND: 42 ± 16 CCC: 51 ± 7	-
Melo 2005	Patients at the outpatient clinic of the Hospital Universitário Oswaldo Cruz of the Universidade de Pernambuco, Brazil without comorbidities	Cross-sectional	IND (n=13): asymptomatic, seropositive individuals with no alterations on ECG, CXR, or ECHO suggestive of heart disease CCC (n=12): seropositive individuals with cardiac impairment evidenced by symptoms and alterations on ECG, CXR, and/or ECHO compatible with chagasic heart disease	IND: 42.2 ± 11.7 CCC: 62.7 ± 7.7	IND: 7 males G2: 6 males
Messias-Reason 2003	Patients at the Cardiology Clinics of the Hospital de Clínicas of the Federal University of Paraná, Brazil	Cross-sectional	IND (n=43) CARD (n=57) Clinical stage assessed by ECG, CXR, esophagram, and ECHO.	IND: 44.0 (23-64)* CARD: 38.0 (23-74)* *Mean (range); no standard deviations provided	-
Miranda 2019	Not specified	Cross-sectional	IND (n=40) CCC (n=40) Clinical stage assessed by clinical exam, laboratory exam, ECG, and ECHO.	IND: 49.68 ± 5.28 CCC: 50.98 ± 5.88 Age was not significantly different between groups (p=0.929).	IND: 21 males CCC: 20 males Sex was not significantly different between groups (p=0.979).
Moreira 2008	Patients from the Heart Failure Center of the Felicio Rocho Hospital, Brazil from 2001-2004 without comorbidities	Cross-sectional	IND (n=52): Chagas disease patients without systolic ventricular dysfunction (LVEF >50%) CCC: -Group 2 (n=29): Chagas disease patients with systolic ventricular dysfunction (LVEF <50%) in NYHA classes I-II -Group 3 (n=30): Chagas disease patients with systolic ventricular dysfunction (LVEF <50%) in NYHA classes III-IV	IND: 51.9 ± 1.4 CCC: Group 2: 52.6 ± 2.2 Group 3: 49.1 ± 1.9 Age was not significantly different between groups (p>0.05).	IND: 24 males CCC: 28 males Sex was not significantly different between groups (p>0.05).

Moreira 2009	Patients from the Heart Failure Center of the Felicio Rocho Hospital, Brazil from 2001-2005 without comorbidities	Cross-sectional	IND (n=32): Chagas disease patients without systolic ventricular dysfunction (LVEF >50%) CCC: -Group 2 (n=18): Chagas disease patients with systolic ventricular dysfunction (LVEF <50%) in NYHA classes I-II -Group 3 (n=14): Chagas disease patients with systolic ventricular dysfunction (LVEF <50%) in NYHA classes III-IV	IND: 51.5 ± 1.9 CCC: -Group 2: 50.9 ± 1.9 -Group 3: 50.5 ± 2.7 Age was not significantly different between groups (p>0.05).	IND: 8 males CCC: 13 males Sex was not significantly different between groups (p>0.05).
Mosca 1986	Individuals in Venezuela	Cross-sectional	IND (n=23): seropositive individuals with no clinical evidence of cardiac disease CCC (n=9): seropositive individuals with a diagnosis of cardiomyopathy	IND: 34.3 ± 9.0 CCC: 45.1 ± 7.6	-
Mundaray Fernández 2014	Patients from the Centro de Investigaciones José Francisco Torrealba in San Juan de los Morros, Guárico State, Venezuela from 1995-1998	Cross-sectional	IND (n=30): seropositive individuals without cardiac symptoms CCC: -Group B (n=30): seropositive individuals with arrhythmia-related symptoms -Group C (n=36): seropositive individuals with overt CHF	IND: 33-54* CCC: -Group B: 54-65* -Group C: 65-86* *Range	IND: 57% males CCC: -Group B: 57% males -Group C: 72% males
Muñoz-San Martín 2018	Patients from endemic zones of Chile without other causes of heart disease	Cross-sectional	IND (n=45): seropositive individuals without ECG alterations CCC (n=41): seropositive individuals with ECG alterations; ECHO was performed to eliminate other causes of cardiomyopathy (hypertension, atherosclerosis, idiopathic cardiomyopathy and congenital malformations)	IND: 51 (20-76)* CCC: 55 (25-81) *Mean (range); no standard deviations provided	IND: 10 males CCC: 15 males
Munoz Saravia 2013	Patients at the Santa Bárbara Hospital Sucre, Bolivia from 2006-2007	Cross-sectional; sub-cohort of a retrospective study	IND (n=48): seropositive individuals with indeterminate disease as determined by clinical investigation, electrocardiographic mapping, and radiological imaging in the cardiological and gastroenterological departments CCC: -Mild/moderate (n=62): seropositive individuals with mild ECG changes in ventricular repolarization or sinus bradycardia (mild) or LAFB, incomplete LBBB, RBBB, second-degree AV block Mobitz type I, or atrial fibrillation in patients age >50 years (moderate) -Severe (n=27): seropositive individuals with cardiomegaly, dilated cardiomyopathy, complete LBBB, AV block Mobitz type II, complete AV block, or atrial fibrillation in patients age <50 years	IND: 41 (30-62)* CCC: -Mild/moderate: 48.5 (18-80)* -Severe: 55 (21-81)* *Median (range)	IND: 21% males CCC: - Mild/moderate: 46% males -Severe: 70% males
Negrão 2009	Out-patients in Brazil	Cross-sectional	IND (n=12): Chagas disease patients without clinical manifestations of Chagas disease and with normal esophagogram, ECG, and normal EF by ECHO, with no myocardial fibrosis by cardiac nuclear MRI and taking no medications CCC (n=15): patients with Chagasic cardiomyopathy with EF <40% in NYHA classes II-III	Groups are age-paired	IND: 2 males CCC: 12 males

Nonaka 2019	Patients at outpatient clinics from Sao Rafael Hospital, Brazil	Cross-sectional	IND (n=10): patients with a diagnosis of Chagas disease confirmed by indirect hemagglutination and indirect immunofluorescence, with an absence of clinical diagnosis of heart failure, and an absence of abnormalities on echography, Holter, and MRI CCC (n=28): patients with a diagnosis of Chagas disease confirmed by indirect hemagglutination and indirect immunofluorescence, with symptomatic heart failure (NYHA classes II-IV) and LVEF ≤55% measured by ECHO, with the presence of myocardial fibrosis visualized as delayed enhancement in cardiac MRI	IND: 59 ± 8 CCC: 60 ± 7	IND: 7 males CCC: 18 males
Noya-Rabelo 2018	Patients in the Chagas disease outpatient clinic at Hospital Sao Rafael in Salvador, Bahia, Brazil from 2012-2013	Cross-sectional	IND (n=17): seropositive individuals without signs of cardiac involvement characterized by normal ECG, CXR, and ECHO CCC: -Without ventricular dysfunction (n=16): seropositive individuals with known heart involvement defined as abnormal ECG (typically, RBBB with left anterior hemiblock) and without left ventricular dysfunction -With ventricular dysfunction (n=28): seropositive individuals with low LVEF in NYHA class III-IV	IND: 59 ± 11 CCC: -Without ventricular dysfunction: 59 ± 9 -With ventricular dysfunction: 58 ± 7	IND: 5 males CCC: 20 males
Noya-Rabelo 2016	Patients in the Chagas disease outpatient clinic at Hospital Sao Rafael in Salvador, Bahia, Brazil from 2012-2013	Cross-sectional	IND (n=17): seropositive individuals without signs of cardiac involvement characterized by normal ECG, CXR, and ECHO CCC: -Without ventricular dysfunction (n=16): seropositive individuals with known heart involvement defined as abnormal ECG (typically, RBBB with left anterior hemiblock) and without left ventricular dysfunction -With ventricular dysfunction (n=28): seropositive individuals low LVEF in NYHA class III-IV	IND: 59 ± 11 CCC: -Without ventricular dysfunction: 59 ± 9 -With ventricular dysfunction: 58 ± 7	IND: 5 males CCC: 20 males
Nunes 2013	Individuals from rural zones in the State of Rio Grande do Norte, Brazil	Cross-sectional	IND (n=72): seropositive individuals whose ECG mapping and radiologic imaging presented no sign of heart or gastrointestinal disease CCC (n=47): seropositive individuals who presented exclusively with cardiac alterations (no gastrointestinal alterations), as assessed by clinical evaluation, ECG, CXR, and ECHO	IND: 48 ± 12 CCC: 51 ± 13 No significant differences were determined in patients by age.	IND: 32 males CCC: 31 males No significant differences were determined in patients by sex.
Okamoto 2014	Individuals recruited from the internal medicine ward, cardiac clinic, and hospital waiting area at San Juan de Dios hospital in Santa Cruz, Bolivia from 2012-2013	Cross-sectional	IND (n=66): individuals with Chagas disease and a normal ECG and ECHO CCC: -Stage B (n=41): individuals with Chagas disease, an abnormal ECG (RBBB, LAFB, LBBB, incomplete RBBB, AV blocks, multifocal or paired ventricular premature beats, atrial fibrillation or flutter, or severe bradycardia ≤50 beats/minute), and a normal ECHO -Stage C (n=18): individuals with Chagas disease and an EF of 40-54% with normal LV end diastolic diameter -Stage D (n=68): individuals with Chagas disease and an EF <40% or LV end diastolic diameter ≥57 mm	IND: 55.6 ± 12.7 CCC: -Stage B: 58.2 ± 12.7 -Stage C: 59.4 ± 12.6 -Stage D: 60.8 ± 11.6	IND: 29 males CCC: 70 males

Passos 2019	Patients from the outpatient clinic of the Universidade Federal de Minas Gerais, Brazil without other heart disease, inflammatory disease, diabetes, or bacterial infections	Cross-sectional	IND (n=6): seropositive individuals with a lack of clinical manifestations or alterations upon all clinical, radiological, and echocardiographic examination CCC (n=6): seropositive individuals with right and/or left ventricular dilation, global LV dysfunction, and alterations in the cardiac electric impulse generation and conduction on ECG, CXR, and ECHO	-	Indeterminate: 2 males Cardiac: 3 males
Passos 2017	Patients from the outpatient clinic of the Universidade Federal de Minas Gerais, Brazil without other heart disease, inflammatory disease, diabetes, or bacterial infections	Cross-sectional	IND (n=6): seropositive individuals with a lack of clinical manifestations or alterations upon all clinical, radiological, and echocardiographic examination CCC (n=6): seropositive individuals with right and/or left ventricular dilation, global LV dysfunction, and alterations in the cardiac electric impulse generation and conduction on ECG, CXR, and ECHO	-	IND: 2 males CCC: 2 males
Peralta 1981	Individuals from an endemic area in Brazil	Cross-sectional	IND (n=20): seropositive individuals with normal ECG CCC: -Group III (n=20): seropositive individuals with slight ECG alterations (ventricular and atrial overloading, and/or non-specific disturbances of the repolarization process, and/or incomplete RBBB, and/or prolongation of the PR interval) -Group IV (n=40): seropositive individuals with severe ECG abnormalities, such as 2nd or 3rd degree AV block, complete RBBB and atrial fibrillation or flutter and multifocal extra-systoles	IND: 38 (27-56)* CCC: -Group III: 39 (33-59)* -Group IV: 40 (27-58)* *Mean (range); no standard deviations provided	-
Peralta 1982	Individuals from an endemic area in Brazil	Cross-sectional	IND (n=16): asymptomatic, seropositive individuals with a normal ECG and heart size on X-ray CCC: -Group II (n=11): seropositive individuals who were asymptomatic or had symptoms attributed to arrhythmia, without cardiac insufficiency, with a normal heart size on X-ray, with ECG showing conduction abnormalities (left anterior hemiblock, complete RBBB, AV block of any grade, or complete LBBB) and/or frequent ventricular or supraventricular extrasystoles -Group III (n=16): seropositive individuals with cardiac insufficiency and/or cardiomegaly on X-ray (cardiothoracic index >0.5), with or without ECG changes	IND: 37 CCC: -Group II: 43 -Group III: 47 No standard deviations provided	-
Pereira 2018	Individuals in an endemic area in Rio Grande do Norte, Brazil, age 18-79	Cross-sectional	IND (n=18) CCC (n=17) Cardiac involvement assessed by 12-lead ECG and ECHO according to WHO and Brazilian Consensus of Chagas Disease II	IND: 41.4 ± 10.7 CCC: 49.7 ± 11.8	IND: 10 males CCC: 6 males

Pérez 2011	Patients at the Chagas Disease Service from the Department of Cardiology, Hospital Provincial del Centenario de Rosario, National University of Rosario, Rosario, Argentina	Subset of a case-control study	IND (n=17): asymptomatic, seropositive individuals with normal ECG and CXR CCC: -Mild to moderate (n=13): seropositive individuals with no CHF and any of the following ECG changes: incomplete or complete RBBB, ventricular arrhythmia, or CXR cardiothoracic ratio <0.55 -Severe (n=13): seropositive individuals with CHF, pathological ECG profiles and CXR cardiothoracic ratio >0.55	Indeterminate: 46.0 ± 3* CCC: -Mild to moderate: 52.9 ± 2.4* -Severe: 54.0 ± 3.7* *Mean ± standard error	-
Pérez-Fuentes 2007	Individuals recruited from the blood bank, cardiology and gastroenterology services at the Centro Medico Nacional Manuel Avila Camacho at the Instituto Mexicano del Seguro Social in Puebla, Mexico	Cross-sectional	IND (n=34): asymptomatic, seropositive individuals with no ECG abnormalities consistent with Chagas disease and no abnormalities of the gastrointestinal tract visible on X-rays CCC: -Group IV (n=17): seropositive individuals with ECG abnormalities but no dilated cardiomyopathy -Group V (n=8): seropositive individuals with dilated cardiomyopathy and who presented with dyspnea, syncope, dysphagia and palpitations or other cardiac abnormalities seen in Chagas disease	IND: 37.7 ± 18.2 CCC: -Group IV: 39.8 ± 17.1 -Group V: 40.9 ± 8.4	IND: 50.0% males CCC: -Group IV: 58.8% males -Group V: 62.5% males
Pérez-Mazliah 2018	Patients at the Chagas Disease Unit of Hospital Interzonal General de Agudos Eva Perón, Buenos Aires, Argentina	Cross-sectional	IND (n=23): seropositive individuals with normal ECG, CXR, and ECHO findings CCC: -G1 (n=6): seropositive individuals with normal CXR and ECHO findings but abnormal ECG findings (Kuschnir grade 0) -G2-3 (n=10): seropositive individuals with ECG abnormalities and heart enlargement with (G2) or without (G3) clinical or radiological evidence of heart failure (Kuschnir grade 2-3)	IND: 43 (21-60)* CCC: -G1: 40 (24-58)* -G2-3: 54 (46-76)* *Median (range) p<0.05 (IND vs. G2-3)	IND: 8 males CCC: 13 males
Pérez-Ramirez 1999	Patients from the Services of Infectious Diseases of the University Hospitals of Sao Paulo, Campinas, and Uberlândia and the Hospital for Hemophilic Patients in Rio de Janeiro, Brazil	Cross-sectional	Indeterminate (n=23) Cardiac (n=27) Clinical staging among seropositive individuals not specified	Indeterminate: 40.8 ± 8.2 Cardiac: 54.8 ± 14.8	-
Pevereng o 2016	Not specified	Cross-sectional	IND (n=65): seropositive individuals with normal radiological, ECG, and ECHO findings CCC: -Group II (n=65): seropositive individuals with ECG alterations but no cardiac insufficiency -Group III (n=47): seropositive individuals with cardiac insufficiency and/or dilated cardiomyopathy by transthoracic ECHO	Individuals in group III were older than those in group I (p<0.001; further detail not provided).	There was no difference in sex distribution between groups (further detail not provided).

Pissetti 2013	Individuals in Minas Gerais, Brazil over age 25 and without HIV	Subset of a case-control study	IND CCC Seropositive individuals were classified as indeterminate or cardiac using clinical examination, ECG, and chest, esophagus, and colon contrast X-ray.	IND: 24/79 <50 years old CCC: 25/113 <50 years old Clinical form was not significantly associated with age class.	IND: 34/81 males CCC: 63/122 males Clinical form was not significantly associated with sex.
Pozo-Pérez 2014	Patients at the Cardiopulmonary Unit of the University Hospital Dr. Luis Razetti in Barcelona, Venezuela from 2010-2011	Cross-sectional	IND (n=20): asymptomatic, seropositive individuals with normal ECG, CXR, and ECHO CCC: -Chagas II (n=24): asymptomatic, seropositive individuals with localized cardiac areas of abnormal contraction, conduction abnormalities due to a lesion in the His Purkinje system, and LVEF >50% -Normal BNP (n=21) -Altered BNP (n=3) -Chagas III (n=20): seropositive individuals with cardiac dysfunction, conduction disorders, and LVEF <50%, with NYHA class III-IV -Normal BNP (n=3) -Altered BNP (n=17)	IND: 59.00 ± 12.32 CCC: -Chagas II: -Normal BNP: 64.29 ± 12.39 -Altered BNP: 80.67 ± 6.11 -Chagas III: -Normal BNP: 69.33 ± 5.03 -Altered BNP: 70.00 ± 10.98 Normal BNP: p=0.228* Altered BNP: p=0.124* *Comparison of IND, Chagas II, and Chagas III groups	-
Puyó 2002	Individuals in Argentina	Prospective cohort	IND (n=9): asymptomatic, seropositive individuals CCC: -Group II (n=6): seropositive individuals with Chagas disease as the only cardiac damage -Group III (n=6): seropositive individuals with chagasic CHF Clinical stage was assessed using ECG, transthoracic ECHO, RX chest test and routine laboratory analyses.	IND: 43.2 ± 4.2 CCC: -Group II: 61.3 ± 2.1 -Group III: 64.3 ± 1.3	IND: 2 males CCC: 6 males
Ramasawmy 2009	Individuals at the Heart Institute (InCor) of the University of Sao Paulo School of Medicine, Brazil	Cross-sectional	IND (n=76): seropositive individuals with normal ECG and ECHO findings, CXR with no evidence of cardiac enlargement, and normal radiograph findings of the esophagus and colon CCC (n=169): seropositive individuals with abnormal EEG findings ranging from typical conduction abnormalities to severe arrhythmia; some had varying degrees of ventricular dysfunction	IND: -Males: 53.4 ± 7.87 -Females: 56.7 ± 9.74 CCC: -Males: 51.4 ± 12.8 -Females: 54.5 ± 10.3	IND: 27 males CCC: 93 males There was a difference in sex distribution between asymptomatic and CCC groups (p=0.004).
Ramasawmy 2006 CID	Individuals at the Heart Institute (InCor) of the University of Sao Paulo School of Medicine, Brazil	Cross-sectional	IND (n=76): seropositive individuals with normal ECG and ECHO findings, CXR with no evidence of cardiac enlargement, and normal radiograph findings of the esophagus and colon CCC (n=169): seropositive individuals with abnormal EEG findings ranging from typical conduction abnormalities to severe arrhythmia; some had varying degrees of ventricular dysfunction	IND: -Males: 53.4 ± 7.87 -Females: 56.7 ± 9.74 CCC: -Males: 51.4 ± 12.8 -Females: 54.5 ± 10.3	IND: 27 males CCC: 93 males There was a difference in sex distribution between

					asymptomatic and CCC groups (p=0.004).
Ramasawmy 2006 JID	Individuals at the Heart Institute (InCor) of the University of Sao Paulo School of Medicine, Brazil	Cross-sectional	IND (n=76): seropositive individuals with normal ECG, ECHO, and CXR findings and normal radiograph findings of the esophagus and colon CCC (n=159): seropositive individuals with abnormal EEG findings	IND: -Males: 53.4 ± 7.9 -Females: 56.7 ± 9.7 CCC: -Males: 51.4 ± 12.8 -Females: 54.5 ± 10.3	IND: 27 males CCC: 87 males
Ramasawmy 2007	Individuals at the Heart Institute (InCor) of the University of Sao Paulo School of Medicine, Brazil	Cross-sectional	IND (n=76): seropositive individuals with normal ECG and ECHO findings, CXR with no evidence of cardiac enlargement, and normal radiograph findings of the esophagus and colon CCC (n=169): seropositive individuals with abnormal EEG findings ranging from typical conduction abnormalities to severe arrhythmia; some had varying degrees of ventricular dysfunction	IND: -Males: 53.4 ± 7.87 -Females: 56.7 ± 9.74 CCC: -Males: 51.4 ± 12.8 -Females: 54.5 ± 10.3	IND: 27 males CCC: 93 males There was a difference in sex distribution between asymptomatic and CCC groups (p=0.004).
Reis 2007	Patients at the Chagas Disease Laboratory in the State University of Maringa, the Clinical Hospital in Londrina, and the Base Hospital of the Medical School in Sao Jose de Rio Preto in Brazil	Cross-sectional	IND (n=48): seropositive individuals with a normal ECG CCC (n=212): seropositive individuals with ECG changes common to CCC	IND: 58.6 ± 7.8 CCC: 63.9 ± 10.2 There was a difference in age by clinical form (p≤0.05).	IND: 24 males CCC: 97 males There was no significant difference in sex distribution by clinical form.
Ripoll 2018	Individuals in Bogotá, Colombia	Cross-sectional	IND (n=9): seropositive individuals with normal ECHO findings in NYHA class I, with normal or abnormal ECG findings CCC (n=12): seropositive individuals with abnormal ECG findings, increased heart size, decreased LVEF, and NYHA class II-IV	IND: 48.78 ± 8.48 CCC: 54.08 ± 9.37	IND: 3 males CCC: 6 males
Rocha 2006	Patients at the Chagas Disease Outpatient Center of the Federal University of Minas Gerais, Brazil without comorbidities or pregnancy	Cross-sectional	IND (n=52): seropositive individuals without any of the changes below CCC (n=118): seropositive individuals with at least one of the following: NYHA class III or IV; ECG abnormalities including 2nd or 3rd degree AV or intraventricular blocks, abnormal Q wave, >1 ventricular ectopic beat per tracing, low voltage QRS in standard leads; cardiothoracic index >0.50; or LVEF <40% or presence of ventricular aneurysms	IND: 39.8 ± 9.0 CCC: 41.8 ± 9.2	IND: 31 males CCC: 66 males

Rocha 2019	Patients at the Chagas Disease Service from the Department of Cardiology, Hospital Provincial del Centenario de Rosario, Rosario, Argentina without neuroendocrine, metabolic, or immunological disease or treatment with hormones or immunomodulators	Subset of a case-control study	IND (n=27): seropositive individuals with normal ECGs, CXR, and routine laboratory tests CCC: -Mild/moderate (n=26): seropositive individuals with mild or moderate compromise and no CHF, but pathological ECG tracings such as complete or incomplete RBBB or ventricular arrhythmia and a CXR cardiothoracic index <0.55 -Severe (n=30): seropositive individuals with CHF, pathological ECG tracings, and a CXR cardiothoracic ratio of >0.55 with normal CPK levels	IND: 45 (18-76)* CCC: -Mild/moderate: 50 (21-76)* -Severe: 53 (19-79)* *Median (range)	IND: 13 males CCC: 23 males
Rodeles 2016	Patients at the Internal Medicine Department of the J.B. Iturraspe Hospital in Argentina without comorbidities	Cross-sectional	IND (n=59): asymptomatic, seropositive individuals with normal radiological, ECG, and ECHO studies CCC: -Group II (n=54): seropositive individuals with ECG alterations (LAFB, left or right bundle branch block, total AV block, complex ventricular arrhythmias) and/or ECHO impairment without HF -Group III (n=42): seropositive individuals with clinically manifested heart failure and/or dilated cardiomyopathy by transthoracic ECHO	IND: 45.4 ± 13.13 CCC: -Group II: 53.5 ± 11.04 -Group III: 58.8 ± 9.78	IND: 19 males CCC: 48 males
Salomone 2001	Individuals in the Province of Córdoba, Argentina	Cross-sectional	IND (n=27): seropositive individuals with no cardiac involvement, as determined by a normal ECG at rest and normal ECHO CCC (n=32): seropositive individuals with cardiac involvement, as determined by an abnormal ECG at rest (i.e. sinus bradycardia and typical conduction disturbances, such as RBBB, left anterior hemiblock, nonspecific intraventricular conduction disturbances, or a combination of these) and/or abnormal ECHO (LV diastolic diameter ≥56 mm and/or EF ≤50%)	IND: 53 ± 2 CCC: 58 ± 9 p-value: 0.03	IND: 33% males CCC: 35% males
Sánchez-Montalvá 2016	Patients attending the Tropical Medicine Unit of the Vall d'Hebron Hospital University in Barcelona, Spain from 2007-2014 and the North Metropolitan International Health Unit in Santa Colomba, Spain without diabetes mellitus, hypertension, alcoholism, ischemic heart disease or other cardiovascular disease	Cross-sectional	IND (n=233): Kuschnir grade 0 CCC: -Kuschnir grade I (n=98) -Kuschnir grade II (n=8) -Kuschnir grade III (n=9)	IND: 36 (30-44)* CCC: -Kuschnir I: 41 (36-47)* -Kuschnir II: 49.5 (45-56)* -Kuschnir III: 58 (38.5-68.5)* *Median (IQR) p<0.001	IND: 58 males CCC: 51 males p=0.01

Sandri 2019	Patients at the outpatient department for Chagas Disease of Hospital de Clínicas, Federal University of Paraná, Brazil without recent infection or suspected non-chagasic cardiomyopathy	Cross-sectional	IND (n=97): asymptomatic individuals with reactive serology and/or positive parasitological examination for *T. cruzi* but no clinical symptoms specific to Chagas disease and normal ECG results and radiological chest, esophagus, and colon exams CCC (n=95): seropositive individuals with altered ECG, with or without altered ECHO	IND: 57 (34-76)* CCC: 51 (34-90)* *Average (range)	IND: 34 males CCC: 46 males
Santos 2012	Patients in Minas Gerais, Brazil in 2006	Cross-sectional	IND (n=15): asymptomatic, seropositive individuals with normal physical examination, ECG, ECHO, thorax X-ray, and esophagus and colon contrast X-rays CCC (n=30): seropositive individuals with any type of cardiac alteration detected through either referred symptoms or signs in the physical examination, ECG, and ECHO, without any alteration in the thorax X-ray or esophagus and colon contrast X-rays	IND: 13-57* CCC: 25-60* *Range	IND: 9 males CCC: 5 males
Saravia 2011	Patients in Sucre, Bolivia	Cross-sectional	IND (n=86) CCC (n=71) Seropositive individuals were classified by clinical investigation, ECG mapping, and radiologic imaging as having no sign of heart or GI disease (indeterminate) or suffering exclusively from cardiomyopathy or from cardiomyopathy combined with megacolon (cardiomyopathy)	IND: 30 (18-62)* CCC: 47 (18-81)* *Median (range) IND individuals were significantly younger than CCC individuals ($p<0.001$).	IND: 19 males CCC: 36 males
Schapachnik 1980	Individuals in Argentina	Cross-sectional	IND (n=26): seropositive individuals with normal ECG and normal cardiothoracic index on radiology CCC: -Group 1 (n=17): seropositive individuals with altered ECG and normal cardiothoracic index on radiology -Group 2 (n=23): seropositive individuals with altered ECG and cardiomegaly I (mild) -Group 3 (n=20): seropositive individuals with altered ECG and cardiomegaly II-III (severe) -Group 5 (n=10): seropositive individuals with normal ECG and cardiomegaly I (mild)	IND: 32.8 CCC: -Group 1: 33.8 -Group 2: 43.7 -Group 3: 45.9 -Group 5: 37.5 No standard deviations provided There is no significant difference between the ages of groups IND, 1, and 5 with groups 2 and 3. There is a difference between the ages of groups 1, 2, and 3 with IND and group 5 patients.	IND: 15 males CCC: 43 males
Silva 2017	Patients at the cardiology and Chagas disease outpatient clinics of the General Hospital of the Federal University of Goias, Brazil from 2014-2015	Cross-sectional	IND (n=90): patients with a diagnosis of Chagas disease, free of systolic dysfunction CCC (n=103): patients with symptomatic heart failure (according to Framingham criteria) secondary to Chagas disease Clinical stage was assessed using recent laboratory, ECHO, and Doppler ECHO results.	IND: 51.3 ± 11.9 CCC: 62.5 ± 11.1 $p<0.001$	IND: 30 males CCC: 51 males $p=0.023$

Silva 2007	Patients at the Chagas disease ambulatory of the University Hospital, Universidade Federal de Minas Gerais, Brazil from 1997-2005	Case-control	IND (n=44): seropositive individuals with the undetermined form of chronic disease who were symptom-free at rest ECG, with normal heart, esophagus, and colon on X-ray CCC (n=46): seropositive individuals with chronic Chagas heart disease as determined by anomalous ECGs	IND: 55.97 ± 4.98 CCC: 59.07 ± 7.15 p=0.024 OR: 1.085 (95% CI: 1.011-1.169)	IND: 18 males CCC: 21 males p=0.650
Simoes 2000	Patients in Brazil (Most subjects in group I were identified through active search of blood donor candidates with positive Chagas disease serology. Subjects in group II-III were recruited in the outpatient clinic of the Division of Cardiology.)	Cross-sectional	IND (n=12): asymptomatic, seropositive individuals with no cardiac involvement as evaluated by CXR, ECG, and ECHO showing normal LV segmental wall motion CCC: -Group II (n=13): seropositive individuals with RBBB on ECG, ventricular ectopic beats or ST changes, and/or mild abnormalities on ECHO (segmental LV dysfunction, particularly at the apical, inferior and posterior regions, or mild LV dilation) with normal global LV function (LVEF ≥0.5 on nuclear ventriculographic study) -Group III (n=12): seropositive individuals with more severe heart disease, encompassing those abnormalities in group II, with more marked LV cavity dilation and global dysfunction (LVEF <0.5)	IND: 43 ± 3 CCC: -Group II: 48 ± 3 -Group III: 59 ± 3	IND: 7 males CCC: 19 males
Soares 2016	Patients recruited at the Emergency room Cardiology of Pernambuco (PROCAPE), University of Pernambuco (UPE), Recife, Pernambuco, Brazil from 2011-2012 without comorbidities, digestive complaints, changes in leukocyte count, or blood or organ transfusion	Cross-sectional	IND (n=7): seropositive individuals who did not show any cardiac or digestive alterations CCC: -CARD1 (n=10): seropositive individuals with ECG alterations and no dilation of the cardiac area on CXR, with an EF >55% on echo-Doppler cardiogram -CARD2 (n=14): seropositive individuals with dilation of the cardiac area on CXR and EF <40%, and/or augmented LV area	IND: 38-63* CCC: 24-71* *Range	IND: 4 males CCC: 7 males
Sousa 2017	Patients at the Referral Outpatient Center for Chagas Disease at the Clinical Hospital of the Universidade Federal de Minas Gerais, Brazil	Cross-sectional	IND (n=95): asymptomatic, seropositive individuals with no significant alterations on ECG, CXR, ECHO CCC (n=145): seropositive individuals with cardiomyopathy, characterized by ECHO findings of dilated LV with impaired ventricular systolic function (LVEF <55% and LVDd/BSA ≥31 mm)	IND: 43 ± 9 CCC: 49 ± 10 CCC individuals were older than IND individuals (p=0.0012).	IND: 40 males CCC: 85 males Male sex was more common among CCC than IND individuals (p=0.0026).
Sousa 2014	Patients at the Referral Outpatient Center for Chagas Disease at the Clinical Hospital of the Universidade Federal de Minas Gerais,	Cross-sectional	IND (n=82): asymptomatic, seropositive individuals with no significant alterations on ECG, CXR, ECHO CCC (n=94): seropositive individuals with dilated cardiomyopathy, characterized by ECHO findings of a dilated LV with impaired ventricular systolic function	IND: 39.6 ± 10.3 CCC: 48 ± 12.52	-

	Brazil without comorbidities				
Storino 2002	Patients seen at a general hospital and the Foundation INCALP in La Plata, Argentina	Cross-sectional	IND: seropositive individuals with no cardiomyopathy -Group A (n=36) -Group B (n=63) CCC: -Without dilation -Group A (n=36) -Group B (n=20) -With dilation -Group A (n=53) -Group B (n=6) Group A: vector-infected individuals with a history of living in an endemic area Group B: individuals infected by non-vector routes (vertical transmission, transfusion, or intravenous drugs) or by isolated visit to an endemic area with presumed vector transmission	IND: -Group A: 37 -Group B: 42 CCC: -Without dilation -Group A: 46 -Group B: 49 -With dilation -Group A: 57 -Group B: 58 No standard deviations provided	IND: 38 males CCC: 50 males There was no significant difference in sex distribution by clinical form.
Strauss 2019	Individuals recruited from a Colombian, Argentinian, Brazilian, and Bolivian (living in Spain) patient group	Case-control	IND: -Colombian cohort (n=361) -Argentinian cohort (n=90) -Bolivian cohort (n=530) CCC: -Colombian cohort (n=576) -Argentinian cohort (n=182) -Bolivian cohort (n=100) Classification by clinical stage among seropositive individuals was determined by complementary tests and clinical findings, including ECG and ECHO to detect any conduction and structural alterations.	IND: -Colombian cohort: 51.90 ± 14.18 -Argentinian cohort: 49.30 ± 13.65 -Bolivian cohort: 46.93 ± 9.49 CCC: -Colombian cohort: 61.44 ± 12.82 -Argentinian cohort: 60.14 ± 10.16 -Bolivian cohort: 50.71 ± 9.41	-
Szarfman 1981	Individuals from the State of Goiás, Brazil	Cross-sectional	IND (n=29): seropositive, clinically healthy individuals CCC: -Slight (n=19): seropositive individuals with EKG alterations such as RBBB and/or left anterior hemiblock, unifocal premature ventricular beats, and primary T-wave changes -Severe (n=9): seropositive individuals with cardiac enlargement and EKG alterations such as AV block, frequent and multifocal premature beats, and atrial fibrillation Clinical stage was assessed using CXR, barium swallow, colon X-ray with barium enema, and EKG. Individuals with megaesophagus and/or megacolon were excluded from the above groups.	IND: 33 (21-47)* CCC: -Slight: 38 (24-49)* -Severe: 43 (37-47)* *Mean (range)	-
Talvani 2006	Patients at the Referral Center for Training in Infectious and Parasitic Diseases at the Hospital das Clinicas, Universidade Federal de	Cross-sectional	IND (n=8): seropositive individuals with normal ECG and radiological studies CCC: -Group I (n=8): seropositive individuals with only minor alterations in their ECHO (e.g. regional contraction defects) -Group II/III (n=7): seropositive individuals with minor or moderate ECG alterations, including block of the	IND: 47 ± 3.4 CCC: -Group I: 48 ± 8.2 -Group II/III: 47 ± 4.5 -Group IV: 44 ± 2.0	IND: 38% males CCC: -Group I: 50% males -Group II/III: 29% males

	Minas Gerais, Brazil without comorbidities		anterosuperior division of the left branch, RBBB, or uniform ventricular premature contractions -Group IV (n=15): seropositive individuals with severe conduction defects (e.g. LBBB, left anterior divisional block with RBBB or total AV block) or complex ventricular arrhythmias (complex ventricular premature beats, non-sustained or sustained ventricular tachycardia) -Group V (n=14): seropositive individuals with ventricular enlargement on ECHO, regardless of the presence of arrhythmias or conduction defects	-Group V: 43 ± 2.3	-Group IV: 47% males -Group V: 79% males
Thomas 2012	Serum samples from chagasic patients, healthy donors, and donors at the Virgen de la Arrixaca Hospital in Murcia, Spain	Cross-sectional	IND (n=28): seropositive individuals with no evidence of cardiac disorder following clinical criteria and radiological, ECG, and thoracic ECHO analyses CCC (n=38): seropositive individuals with chronic Chagas' cardiomyopathy according to clinical criteria and radiological, ECG, and thoracic ECHO analyses; Kuschnir grade 1-3 Individuals with megaesophagus and/or megacolon detected by esophagogram and barium enema analyses were excluded from the above groups.	IND: 31.5 (12-47) CCC: 40.0 (28-74) No standard deviations provided	IND: 8 males CCC: 16 males
Torreao 2015	Individuals in Brazil with no cardiac comorbidities	Cross-sectional	IND (n=16): seropositive individuals without evidence of cardiac involvement by ECG, CXR, and ECHO CCC: -No LV dysfunction (n=27): seropositive individuals with cardiac disease without LV systolic dysfunction, determined by an EF ≥55% by routine ECHO and ECG abnormalities (RBBB with left anterior hemiblock) -LV dysfunction (n=21): seropositive individuals with cardiac disease with LV systolic dysfunction, determined by EF <55% on ECHO	IND: 57.8 ± 11.9 CCC: -No LV dysfunction: 54.3 ± 10.3 -LV dysfunction: 54.7 ± 11.3 p=0.61	IND: 3 males CCC: 23 males p=0.02
Torres 2010 (IGE)	Individuals in Santander, Colombia	Cross-sectional	IND (n=116): seropositive individuals without cardiac symptoms and with a normal ECG CCC (n=120): seropositive individuals with conduction alterations and/or structural cardiomyopathy on clinical evaluation, ECG, Holter monitoring, and ECHO	IND: 48.7 CCC: 55.2 No standard deviations provided	IND: 31% males CCC: 41% males
Uellendahl 2016	Patients at the Chagas disease Clinic in Osvaldo Cruz Hospital in Brazil from 2004-2006	Cross-sectional	IND (n=11): asymptomatic, seropositive individuals with normal ventricular function CCC (n=28): seropositive individuals with systolic dysfunction Clinical stage was assessed using CXR, ECHO, 24-hour Holter, and a clinical interview to determine NYHA functional class.	IND: 48.3 ± 12.2 CCC: 57.4 ± 12.5 p=0.045	IND: 2 males CCC: 18 males p=0.014
Valerio 2011	Consecutive adult patients newly diagnosed with Chagas infection at the Unitat de Salut Internacional Metropolitana Nord in Barcelona, Spain from 2005-2009 who are not pregnant and without cardiac comorbidities	Cross-sectional	Seropositive individuals were assessed for the presence of cardiac symptoms (at least one of the following: antecedents of chest pain, palpitations, syncope, pulmonary thromboembolism, stroke, or symptoms of HF such as lower leg edema or dyspnea on exertion), ECG alterations (sinus bradycardia, RBBB, LAFB, LBBB, posterior fascicular block, atrial fibrillation, any degree of AV block, ventricular extrasystoles, or Q wave or diffuse ST-T changes), and ECHO alterations (LV wall dysfunction, ventricular aneurysm [apical or other], low EF [<50%], or valve disease attributable to Chagas endocardial fibrosis).	No statistically significant relations were found between cardiac symptoms, ECG, or EHO alterations and age.	No statistically significant relations were found between cardiac symptoms, ECG, or EHO alterations and sex.

Vasconcelos 2009	Patients at the Brasilia University Hospital Cardiology Ambulatory in Brazil	Cross-sectional	IND (n=17): seropositive individuals with the absence of any clinical, general, and organ-specific manifestations and by a normal CXR and ECG CCC (n=13): seropositive individuals with typical ECG alterations (1st grade AV block, complete LBBB, complete RBBB plus left anterior hemiblock, complete RBBB, left anterior hemiblock, or diffuse alteration of ventricular repolarization), with no past or present HF or any other cardiovascular or clinical disturbances	IND: 39 (35-45)* CCC: 44 (35-49)* *Median (IQR)	IND: 29% males CCC: 54% males
Vasconcelos 2015	Patients at the Chagas Disease and Heart Failure Outpatient Clinic-PROCAPE from the University of Pernambuco, Brazil	Cross-sectional	IND (n=19): asymptomatic, seropositive individuals CCC: -CARD1 (n=35): seropositive individuals with cardiac alterations but no heart dilation and LVEF > 50% -CARD2 (n=26): seropositive individuals with clinical signs of severe cardiomyopathy, with heart enlargement and LVEF <50% Clinical stage was assessed using ECG, CXR, and ECHO.	IND: 50.84 ± 13.99 CCC: -CARD1: 63.11 ± 13.63 -CARD2: 59.15 ± 8.70 IND individuals were younger than CARD 1 individuals (p=0.0018) and CARD 2 individuals (p=0.0150).	-
Venegas 2009	Individuals from endemic areas in Chile recruited in 1992, treated with allopurinol	Prospective observational	IND (n=20) CCC (n=17) Seropositive individuals were seen biannually over 13 years of follow-up. Clinical staging was assessed using EKG, CXR, and in some cases, ECHO. Individuals were classified as cardiopathic if an altered EKG profile was maintained over a period of 10 years.	IND: 48.05 ± 10.53 CCC: 48.18 ± 11.05	IND: 10 males CCC: 5 males No significant difference in sex distribution between groups was found.
Vercosa 2007	Patients at the Chagas' Disease Outpatients Clinic of the Clinical Hospital of the Federal University of Pernambuco and the Oswaldo Cruz University Hospital of the State University of Pernambuco in Recife, Brazil	Cross-sectional	IND (n=20) CCC (n=33) Clinical stage was determined using criteria by the World Health Organization.	IND: 22-69 CCC: 33-73 *Range	IND: 10 males CCC: 14 males
Vicco 2014	Patients at the Clinical Service of the Iturraspe Hospital in Sante Fe, Argentina without cardiac comorbidities or risk factors	Cross-sectional	IND (n=30): seropositive individuals with normal radiological, ECG, and ECHO studies CCC: -Stage II (n=40): seropositive individuals with ECG alterations but without HF -Stage III (n=40): seropositive individuals with clinical HF and/or dilated cardiomyopathy by transthoracic ECHO (LVEF <45% and/or fractional shortening <25%, associated with LV enlargement defined as LV end-diastolic diameter ≥117% of predicted value corrected for age and body surface)	IND stage I: 47.8 ± 12 CCC: -Stage II: 54.2 ± 11.6 -Stage III: 61.5 ± 8.5 p<0.001	IND: 12 males CCC: 39 males No statistically significant difference between groups

Vicco 2013	Patients at the Clinical Service of the Iturraspe Hospital in Sante Fe, Argentina without comorbidities or cardiac risk factors	Cross-sectional	IND (n=30): seropositive individuals with normal radiological, ECG, and ECHO studies CCC: -Stage II (n=25): seropositive individuals with ECG alterations such as left anterior divisional block, RBBB, total AV block, LBBB, complex ventricular arrhythmias, and block of the anterosuperior division of the left branch -Stage III (n=25): seropositive individuals with clinical HF and/or dilated cardiomyopathy on ECHO	IND: 49.7 ± 12 CCC: -Stage II: 53.5 ± 11 -Stage III: 58.4 ± 8 p=0.012	IND: 30% males CCC: 48% males No statistically significant difference between groups
Villacorta 2006	Individuals in Brazil from 1999-2000 without comorbidities	Cross-sectional	IND (n=16): seropositive individuals with an indeterminate form of Chagas disease, characterized by positive serum Machado Guerreiro reaction and no clinical manifestations CCC: -Group 2 (n=18): seropositive individuals with Chagas disease, ECG abnormalities, and normal LV systolic function -Group 3 (n=19): seropositive individuals with Chagas disease, systolic dysfunction (LV fractional shortening ≤25%), and CHF Clinical stage was assessed using medical history, physical examination, X-ray of the thorax, ECG, and ECHO.	IND: 49.7 ± 5.9 CCC: -Group 2: 47.4 ± 9.3 -Group 3: 49 ± 10 p=0.33	IND: 6 males CCC: 14 males p=0.30
Villar 2004	Individuals recruited among incident blood donors at the Hospital Universitario Ramón Gonzalez Valencio in Bucaramanga, Colombia without comorbidities	Cross-sectional	IND (n=21): seropositive individuals without ECG alterations CCC (n=15): seropositive individuals with ECG alterations (any conduction/rhythm abnormality; bradycardia <55 bpm, AV block, RBBB, LAFB, or premature ectopic atrial/ventricular beats)	IND: 40.6 ± 6.9 CCC: 45.0 ± 10.2 p<0.05	IND: 9 males CCC: 9 males
Viotti 2009	Patients at a referral center in Argentina from 1990-2005 without comorbidities	Prospective observational	IND (n=505): seropositive individuals with a normal ECG and cardiothoracic index on CXR (<0.50); Kuschnir grade 0 CCC: -Group I (n=227): seropositive individuals with abnormal ECG and normal cardiothoracic index on CXR (<0.50); Kuschnir grade 1 -Group II+III (n=69): seropositive individuals with abnormal ECG, cardiothoracic index >0.50 on CXR, with (III) or without (II) signs or symptoms of HF; Kuschni grade 2-3	IND: 39.3 ± 13.2 CCC: -Group I: 46.8 ± 10.9 -Group II+III: 47.9 ± 10.2 p<0.001 (comparing IND, Group I, and Group II+III)	IND: 213 42.3% males CCC: -Group I: 90 (39.8%) males -Group II+III: 40 (58.0%) males p=0.025 (comparing IND, Group I, and Group II+III)
Vitelli-Avelar 2008	Individuals in Brazil	Cross-sectional	IND: seropositive individuals with no clinical manifestations -Cohort 1 (n-6) -Cohort 2 (n=5) CCC: seropositive individuals with dilated cardiomyopathy -Cohort 1 (n=8) -Cohort 2 (n=13)	IND: -Cohort 1: 43-67* -Cohort 2: 35-46* CCC: -Cohort 1: 50-70* -Cohort 2: 29-58* *Range	IND: -Cohort 1: 3 males -Cohort 2: 1 male CCC: -Cohort 1: 2 males -Cohort 2: 7 males

Vizzoni 2018	Patients at the outpatient service of the Evandro Chagas National Institute of Infectious Disease in Rio de Janeiro, Brazil from 2013-2016	Cross-sectional	IND (n=180) CCC (n=343) Clinical stage was assessed among seropositive individuals using data in electronic medical records, including comorbidities and symptoms related to Chagas disease, Chagas disease classification, and LVEF, according to the Brazilian consensus. Patients in the digestive or cardiodigestive form were excluded from the above groups.	Indeterminate: 55.5 ± 12.7 Cardiac: 61.5 ± 11.3	Indeterminate: 76 males Cardiac: 156 males There was no significant difference in sex by clinical form.
Volpato 2017	Patients at the Referral Outpatient Center for Chagas Disease at the Clinical Hospital of the Universidade Federal de Minas Gerais, Brazil	Cross-sectional	IND (n=23) CCC (n=68) Clinical stage was assessed among seropositive individuals using medical history, physical examination, ECG, laboratory and CXR examinations, and ECHO.	IND: 44 ± 10.3 CCC: 54 ± 10.3	IND: 8 males CCC: 45 males
Wallukat 2010	Patients at the Santa Bárbara Hospital in Sucre, Bolivia from 2006-2007	Retrospective observational	IND (n=96) CCC (n=57) Clinical stage was assessed among seropositive individuals using clinical investigation, ECG mapping, and radiological imaging.	IND: 30 (18-82)* CCC: 47 (18-82)* *Median (range) IND patients were younger than CCC patients (no statistics provided).	IND: 26 males CCC: 47 males
Wang 2013	Patients at the Heart Failure Centre of Felicio Rocho Hospital in Brazil from 2001-2005	Prospective cohort	IND (n=46): seropositive individuals without systolic ventricular dysfunction (LVEF >50%) CCC: -Group 2 (n=25): seropositive individuals with ventricular dysfunction (LVEF <50%) in NYHA classes I-II -Group 3 (n=23): seropositive individuals with ventricular dysfunction (LVEF <50%) in NYHA classes III-IV	IND: 52.0 ± 1.5 CCC: -Group 2: 50.6 ± 2.3 -Group 3: 48.9 ± 1.9	IND: 11 males CCC: 23 males
Wang 2010 (JCF)	Patients at the Heart Failure Centre of Felicio Rocho Hospital in Brazil from 2001-2005 without comorbidities	Prospective cohort	IND (n=52): seropositive individuals without systolic ventricular dysfunction (LVEF >50%) CCC: -NYHA I-II (n=29): seropositive individuals with ventricular dysfunction (LVEF <50%) in NYHA classes I-II -NYHA III-IV (n=30): seropositive individuals with ventricular dysfunction (LVEF <50%) in NYHA classes III-IV	IND: 51.9 ± 1.4 CCC: -NYHA I-II: 52.6 ± 2.2 -NYHA III-IV: 49.1 ± 1.9	IND: 14 males CCC: 28 males
Wang 2011	Patients at the Heart Failure Centre of Felicio Rocho Hospital in Brazil from 2001-2005 without comorbidities	Prospective cohort	IND (n=43): seropositive individuals without systolic ventricular dysfunction (LVEF >50%) CCC: -NYHA I-II (n=24): seropositive individuals with ventricular dysfunction (LVEF <50%) in NYHA classes I-II -NYHA III-IV (n=27): seropositive individuals with ventricular dysfunction (LVEF <50%) in NYHA classes III-IV	IND: 51.9 ± 1.4 CCC: -NYHA I-II: 52.6 ± 2.2 -NYHA III-IV: 49.1 ± 1.9	IND: 9 males CCC: 26 males

Wang 2010 (JCP)	Patients at the Heart Failure Centre of Felicio Rocho Hospital in Brazil from 2001-2005	Prospective cohort	IND (n=46): seropositive individuals without systolic ventricular dysfunction (LVEF >50%) CCC: -NYHA I-II (n=29): seropositive individuals with ventricular dysfunction (LVEF <50%) in NYHA classes I-II -NYHA III-IV (n=27): seropositive individuals with ventricular dysfunction (LVEF <50%) in NYHA classes III-IV	IND: 51.9 ± 1.4 CCC: -NYHA I-II: 52.6 ± 2.2 -NYHA III-IV: 49.1 ± 1.9	IND: 9 males CCC: 28 males
Wang 2012	Patients at the Heart Failure Centre of Felicio Rocho Hospital in Brazil from 2001-2005 without comorbidities	Prospective cohort	IND (n=46): seropositive individuals without systolic ventricular dysfunction (LVEF >50%) CCC: -NYHA I-II (n=22): seropositive individuals with ventricular dysfunction (LVEF <50%) in NYHA classes I-II -NYHA III-IV (n=23): seropositive individuals with ventricular dysfunction (LVEF <50%) in NYHA classes III-IV	IND: 52.0 ± 1.5 CCC: -NYHA I-II: 50.6 ± 2.3 -NYHA III-IV: 48.9 ± 1.9	IND: 11 males CCC: 22 males
Ward 1999	Patients at an outpatient clinic of the Hospital das Clínicas in Brazil without suspected immune or inflammatory disease	Cross-sectional	IND (n=17): asymptomatic, seropositive individuals with no cardiac or visceral manifestations (indeterminate form) CCC: -Group II (n=4): individuals with ECG abnormalities but normal cardiac function (early cardiac form) -Group III (n=62): individuals with Chagas cardiac disease Patients with the digestive or mixed form were excluded from the above groups.	IND: 48 ± 15 CCC: -Group II: 54 ± 10 -Group III: 55 ± 8.5 There was no significant difference in age by clinical form.	IND: 8 males CCC: 22 males There was no significant difference in sex by clinical form.
Zafra 2008	Patients from the Department of Santander, Colombia	Cross-sectional	IND (n=132): seropositive individuals without cardiac symptoms and with normal ECG CCC (n=143): seropositive individuals with conduction alterations and/or structural cardiomyopathy, assessed by clinical evaluation, ECG, Holter, and ECHO	IND: 48.7 CCC: 55.2 No standard deviations provided	IND: 31.1% males CCC: 38.5% males
Zafra 2007	Patients from the Department of Santander, Colombia	Cross-sectional	IND (n=130): seropositive individuals without cardiac symptoms and with normal ECG CCC (n=130): seropositive individuals with conduction alterations and/or structural cardiomyopathy, assessed by clinical evaluation, ECG, Holter, and ECHO	IND: 49.2 CCC: 52.6 No standard deviations provided	IND: 32% males CCC: 38.5% males
Zago 2019	Individuals at public hospitals in Salta, Argentina	Cross-sectional	IND (n=25): seropositive individuals with minor to no ECG abnormalities, no changes in ventricular walls, and normal EF (55-70%) CCC (n=28): seropositive individuals with a degree of ECG abnormalities, cardiomegaly, systolic dysfunction (EF <55%), LV dilation (diastolic diameter ≥57 mm), and/or potential signs of HF	IND: 49.8 ± 9 CCC: 53 ± 10.6	IND: 46% males CCC: 53% males
Zerlotti 1994	Individuals in Brazil	Cross-sectional	IND (n=12): clinically asymptomatic individuals with a normal ECG CCC (n=14): individuals with abnormal ECG and clinical findings	IND: 49 ± 8.2 CCC: 48.2 ± 11.9	IND: 8 males CCC: 10 males

Zicker 1990 (IJE)	Unskilled workers in Goiania, Brazil	Cross-sectional	IND (n=347): seropositive individuals without any of the below ECG alterations CCC (n=277): seropositive individuals with any of the following ECG alterations: large Q or QS waves, pattern of ventricular hypertrophy (tall precordial R waves) with ST segment and T wave alterations, AV block, ventricular conduction defects, complex arrhythmias, ventricular premature beats when present in 10% or more of recorded cycles or when multifocal or bigeminy, and sinus bradycardia (<50 bpm) associated with extrasystoles or primary and diffuse changes in ventricular repolarization	IND: 41.1 ± 8.7 CCC: 44.4 ± 9.3 p<0.001	IND: 72.0% males CCC: 82.7% males p<0.01
Zicker 1990 (AJTMH)	Unskilled workers in Goiania, Brazil	Cross-sectional	IND (n=345) CCC (n=247) Chagas heart disease was classified according to WHO criteria.	IND: 10 age ≤25, 84 age 26-35, 132 age 36-45, 102 age 46-55, 17 age ≥56 CCC: 5 age ≤25, 41 age 26-35, 88 age 36-45, 81 age 46-55, 32 age ≥56 Age ≥56 years was more common among CCC than IND individuals (p<0.05).	IND: 251 CCC: 201 p<0.05

CCC: chronic Chagas cardiomyopathy
IND: indeterminate
EKG: electrocardiogram
CXR: chest X-ray
ECHO: echocardiogram

Table S3. Risk of bias assessment using Joanna Briggs Institute (2017) Critical Appraisal Checklist for Analytical Cross Sectional Studies. Each category can be listed as yes (Y), no (N), unclear (U), or not applicable (NA).

Study	Were the criteria for inclusion in the sample clearly defined?	Were the study subjects and the setting described in detail?	Was the exposure measured in a valid and reliable way?	Were objective, standard criteria used for measurement of the condition?	Were confounding factors identified?	Were strategies to deal with confounding factors stated?	Were the outcomes measured in a valid and reliable way?	Was appropriate statistical analysis used?
Abel 2001	Y	N	Y	Y	N	N	U	NA
Albareda 2006	Y	N	Y	Y	N	N	Y	NA
Albareda 2015	Y	N	Y	Y	N	N	Y	NA
Almeida 2018	Y	N	Y	Y	N	N	Y	NA
Alves 2009	Y	Y	Y	Y	Y	N	Y	NA
Aparecida 2010	Y	Y	Y	Y	N	N	Y	NA
Apt 2015	Y	Y	Y	Y	Y	N	Y	Y
Apt 2016	Y	Y	Y	Y	Y	N	Y	Y
Apt 2019	Y	N	Y	Y	Y	N	Y	Y
Araujo-Jorg 2002	Y	Y	Y	Y	N	N	Y	NA
Arguello 2012	Y	Y	Y	Y	N	N	Y	Y
Ayo 2015	Y	Y	Y	Y	N	N	Y	NA
Batista 2018	Y	Y	Y	Y	N	N	Y	NA
Bautista-López 2013	Y	Y	Y	Y	N	N	Y	Y

Bravo-Tobar 2015	**Y**	**Y**	**Y**	**Y**	**Y**	**N**	**Y**	**Y**
Cetron 1993	**Y**	**Y**	**Y**	**Y**	**N**	**N**	**U**	**N**
Chaves 2016	**Y**	**Y**	**Y**	**Y**	**N**	**N**	**Y**	**NA**
Clark 2015	**Y**	**Y**	**Y**	**Y**	**N**	**N**	**Y**	**NA**
Costa 2009	**Y**	**N**	**Y**	**U**	**N**	**N**	**Y**	**NA**
Curvo 2018	**Y**	**Y**	**Y**	**Y**	**N**	**N**	**Y**	**Y**
Cutrullis 2013	**Y**	**Y**	**Y**	**Y**	**N**	**N**	**Y**	**Y**
D'Ávila 2009 (Mem Inst)	**N**	**N**	**Y**	**Y**	**N**	**N**	**Y**	**NA**
D'Ávila 2009 (JCM)	**Y**	**N**	**Y**	**Y**	**N**	**N**	**Y**	**NA**
D'Ávila 2018	**Y**	**Y**	**Y**	**Y**	**Y**	**N**	**Y**	**Y**
De Melo 2012	**Y**	**N**	**Y**	**Y**	**N**	**N**	**Y**	**NA**
De Moura Braz 2014	**Y**	**N**	**Y**	**Y**	**N**	**N**	**Y**	**NA**
Del Puerto 2010	**Y**	**Y**	**Y**	**Y**	**N**	**N**	**U**	**NA**
Dias 2013	**Y**	**N**	**Y**	**U**	**N**	**N**	**U**	**NA**
Echeverría 2020	**Y**	**Y**	**Y**	**U**	**N**	**N**	**Y**	**Y**
Fabbro 2011	**Y**	**Y**	**Y**	**N**	**N**	**N**	**Y**	**NA**

Faé 2000	**Y**	**Y**	**Y**	**U**	**N**	**N**	**U**	**NA**
Fares 2013	**Y**	**Y**	**Y**	**Y**	**N**	**N**	**Y**	**NA**
Fernandes 2007	**Y**	**Y**	**Y**	**Y**	**N**	**N**	**Y**	**NA**
Fernández-Mestre 2002	**Y**	**N**	**Y**	**U**	**N**	**N**	**Y**	**NA**
Ferreira 2017	**Y**	**Y**	**Y**	**Y**	**N**	**N**	**Y**	**NA**
Ferreira 2003	**Y**	**Y**	**Y**	**Y**	**N**	**N**	**Y**	**NA**
Ferreira 2018	**Y**	**Y**	**Y**	**Y**	**N**	**N**	**Y**	**NA**
Flórez 2011	**Y**	**Y**	**Y**	**Y**	**N**	**N**	**Y**	**NA**
Flórez 2006	**Y**	**Y**	**Y**	**Y**	**N**	**N**	**Y**	**NA**
Frade 2013 (BMC)	**Y**	**Y**	**Y**	**Y**	**N**	**N**	**Y**	**Y**
Frade 2013 (PLoS ONE)	**Y**	**Y**	**Y**	**Y**	**N**	**N**	**Y**	**Y**
Garcia-Alvarez 2010	**Y**	**Y**	**Y**	**Y**	**N**	**N**	**Y**	**NA**
Garg 2016	**Y**	**Y**	**Y**	**Y**	**N**	**N**	**Y**	**NA**
Gasparim 2018	**Y**	**Y**	**Y**	**U**	**Y**	**N**	**U**	**NA**
Gazzinelli 1990	**N**	**N**	**Y**	**N**	**N**	**N**	**U**	**NA**
Gazzinelli 1988	**N**	**N**	**Y**	**U**	**N**	**N**	**U**	**NA**

Georg 2017	**Y**	**Y**	**Y**	**Y**	**N**	**N**	**U**	**NA**
Giménez 2003	**Y**	**Y**	**Y**	**Y**	**N**	**N**	**Y**	**NA**
Giraldo 2013	**N**	**Y**	**Y**	**Y**	**N**	**N**	**N**	**NA**
Gomes 2012	**N**	**Y**	**Y**	**Y**	**N**	**N**	**U**	**NA**
Gomes 2018	**N**	**Y**	**Y**	**Y**	**N**	**N**	**U**	**NA**
Gomes 2016	**Y**	**Y**	**Y**	**Y**	**N**	**N**	**Y**	**NA**
Gómez-Olarte 2019	**Y**	**Y**	**Y**	**Y**	**N**	**N**	**N**	**NA**
González 2014	**Y**	**N**	**Y**	**Y**	**N**	**N**	**Y**	**NA**
González 2018	**Y**	**Y**	**Y**	**Y**	**N**	**N**	**Y**	**NA**
Guedes 2016	**Y**	**Y**	**Y**	**Y**	**N**	**N**	**Y**	**NA**
Gusmão 1982	**Y**	**Y**	**Y**	**Y**	**N**	**N**	**Y**	**NA**
Heringer-Walther 2006	**Y**	**Y**	**Y**	**Y**	**N**	**N**	**N**	**NA**
Higuchi 2009	**N**	**N**	**Y**	**U**	**N**	**N**	**U**	**NA**
Higuchi 2018	**Y**	**N**	**Y**	**Y**	**N**	**N**	**N**	**NA**
Iosa 1989	**Y**	**N**	**Y**	**Y**	**N**	**N**	**Y**	**NA**
Juiz 2019	**Y**	**Y**	**Y**	**U**	**N**	**N**	**Y**	**NA**

Kaplinski 2015	**Y**	**Y**	**Y**	**Y**	**N**	**N**	**Y**	**NA**
Keating 2015	**Y**	**N**	**Y**	**U**	**N**	**N**	**U**	**NA**
Khan 2016	**Y**	**Y**	**Y**	**Y**	**N**	**N**	**N**	**NA**
Larocca 2017	**Y**	**Y**	**Y**	**Y**	**N**	**N**	**U**	**NA**
Lassen 2018	**Y**	**Y**	**Y**	**Y**	**N**	**N**	**U**	**NA**
Lasso 2015	**Y**	**Y**	**Y**	**Y**	**N**	**N**	**N**	**NA**
Laucella 1996 (Acta Tropica)	**Y**	**Y**	**Y**	**Y**	**N**	**N**	**Y**	**NA**
Laucella 2001	**Y**	**Y**	**Y**	**Y**	**N**	**N**	**N**	**NA**
Laucella 1996 (AJTMH)	**Y**	**Y**	**Y**	**Y**	**N**	**N**	**N**	**NA**
Leon Rodriguez 2016 (HLA)	**Y**	**N**	**Y**	**Y**	**Y**	**N**	**U**	**NA**
Leon Rodriguez 2018	**Y**	**N**	**Y**	**Y**	**N**	**N**	**U**	**NA**
Leon Rodriguez 2016 (PLoS NTD)	**Y**	**N**	**Y**	**Y**	**Y**	**N**	**U**	**NA**
Leon Rodriguez 2016 (Sci Rep)	**Y**	**Y**	**Y**	**Y**	**N**	**N**	**Y**	**NA**
Lidani 2018	**Y**	**Y**	**Y**	**Y**	**N**	**N**	**Y**	**NA**
Llop 1988	**Y**	**N**	**Y**	**U**	**N**	**N**	**U**	**NA**
López 2006	**Y**	**Y**	**Y**	**Y**	**Y**	**N**	**Y**	**Y**

Lorena 2010	**Y**	**N**	**Y**	**U**	**N**	**N**	**U**	**NA**
Luz 2013	**Y**	**Y**	**Y**	**U**	**N**	**N**	**U**	**NA**
Luz 2016	**Y**	**Y**	**Y**	**U**	**N**	**N**	**Y**	**NA**
Marques 2006	**Y**	**Y**	**Y**	**Y**	**N**	**N**	**Y**	**NA**
Martín 1987	**Y**	**N**	**Y**	**Y**	**N**	**N**	**U**	**NA**
Medeiros 2017	**Y**	**Y**	**Y**	**Y**	**N**	**N**	**Y**	**NA**
Medeiros 2019 (Front Immmunol)	**Y**	**Y**	**Y**	**Y**	**N**	**N**	**Y**	**NA**
Melo 2005	**Y**	**N**	**Y**	**Y**	**N**	**N**	**U**	**NA**
Messias-Reason 2003	**Y**	**Y**	**Y**	**Y**	**N**	**N**	**U**	**NA**
Miranda 2019	**N**	**Y**	**Y**	**U**	**N**	**N**	**U**	**Y**
Moreira 2008	**Y**	**Y**	**Y**	**Y**	**N**	**N**	**N**	**Y**
Moreira 2009	**Y**	**Y**	**Y**	**Y**	**N**	**N**	**N**	**Y**
Mosca 1986	**N**	**N**	**Y**	**U**	**N**	**N**	**U**	**NA**
Mundaray Fernández 2014	**Y**	**N**	**Y**	**Y**	**N**	**N**	**N**	**NA**
Muñoz-San Martín 2018	**Y**	**Y**	**Y**	**Y**	**N**	**N**	**Y**	**NA**
Munoz Saravia 2013	**Y**	**N**	**Y**	**Y**	**N**	**N**	**U**	**NA**

Negrão 2009	**Y**	**Y**	**Y**	**U**	**N**	**N**	**Y**	**NA**
Nonaka 2019	**Y**	**N**	**Y**	**Y**	**N**	**N**	**Y**	**NA**
Noya-Rabelo 2018	**Y**	**Y**	**Y**	**Y**	**N**	**N**	**Y**	**NA**
Noya-Rabelo 2016	**Y**	**Y**	**Y**	**Y**	**N**	**N**	**Y**	**NA**
Nunes 2013	**Y**	**N**	**Y**	**Y**	**N**	**N**	**U**	**Y**
Okamoto 2014	**Y**	**Y**	**Y**	**Y**	**Y**	**N**	**Y**	**NA**
Passos 2019	**Y**	**Y**	**Y**	**U**	**N**	**N**	**Y**	**NA**
Passos 2017	**Y**	**Y**	**Y**	**U**	**N**	**N**	**Y**	**NA**
Peralta 1981	**Y**	**N**	**Y**	**Y**	**N**	**N**	**Y**	**NA**
Peralta 1982	**Y**	**N**	**Y**	**Y**	**N**	**N**	**Y**	**NA**
Pereira 2018	**Y**	**Y**	**Y**	**Y**	**N**	**N**	**Y**	**NA**
Pérez 2011	**Y**	**Y**	**Y**	**Y**	**N**	**N**	**Y**	**NA**
Pérez-Fuentes 2007	**Y**	**Y**	**Y**	**Y**	**N**	**N**	**U**	**NA**
Pérez-Mazliah 2018	**Y**	**Y**	**Y**	**Y**	**N**	**N**	**U**	**Y**
Pérez-Ramirez 1999	**Y**	**Y**	**Y**	**Y**	**N**	**N**	**U**	**NA**
Peverengo 2016	**Y**	**Y**	**Y**	**Y**	**N**	**N**	**Y**	**Y**

Pissetti 2013	**Y**	**N**	**Y**	**Y**	**N**	**N**	**Y**	**Y**
Pozo-Pérez 2014	**Y**	**N**	**Y**	**Y**	**N**	**N**	**Y**	**Y**
Puyó 2002	**N**	**Y**	**Y**	**Y**	**N**	**N**	**Y**	**NA**
Ramasawmy 2009	**Y**	**Y**	**Y**	**Y**	**N**	**N**	**Y**	**NA**
Ramasawmy 2006 CID	**Y**	**Y**	**Y**	**Y**	**N**	**N**	**Y**	**Y**
Ramasawmy 2006 JID	**Y**	**N**	**Y**	**U**	**N**	**N**	**U**	**NA**
Ramasawmy 2007	**Y**	**Y**	**Y**	**Y**	**N**	**N**	**Y**	**Y**
Reis 2007	**Y**	**N**	**Y**	**N**	**N**	**N**	**Y**	**Y**
Ripoll 2018	**Y**	**Y**	**Y**	**Y**	**N**	**N**	**N**	**NA**
Rocha 2006	**Y**	**Y**	**Y**	**Y**	**N**	**N**	**Y**	**NA**
Rocha 2019	**Y**	**N**	**Y**	**Y**	**N**	**N**	**U**	**NA**
Rodeles 2016	**Y**	**Y**	**Y**	**U**	**N**	**N**	**Y**	**NA**
Salomone 2001	**Y**	**Y**	**Y**	**Y**	**N**	**N**	**Y**	**Y**
Sánchez-Montalvá 2016	**Y**	**Y**	**Y**	**Y**	**N**	**N**	**Y**	**Y**
Sandri 2019	**Y**	**Y**	**Y**	**Y**	**N**	**N**	**Y**	**NA**
Santos 2012	**Y**	**Y**	**Y**	**Y**	**N**	**N**	**U**	**NA**

Saravia 2011	**Y**	**Y**	**Y**	**U**	**N**	**N**	**Y**	**Y**
Schapachnik 1980	**Y**	**N**	**Y**	**U**	**Y**	**N**	**U**	**Y**
Silva 2017	**Y**	**Y**	**N**	**U**	**N**	**N**	**N**	**Y**
Silva 2007	**Y**	**Y**	**Y**	**Y**	**Y**	**N**	**Y**	**Y**
Simoes 2000	**Y**	**Y**	**Y**	**U**	**N**	**N**	**Y**	**NA**
Soares 2016	**Y**	**N**	**Y**	**Y**	**N**	**N**	**Y**	**NA**
Sousa 2017	**Y**	**Y**	**Y**	**Y**	**N**	**N**	**Y**	**Y**
Sousa 2014	**Y**	**Y**	**Y**	**Y**	**N**	**N**	**N**	**NA**
Storino 2002	**Y**	**N**	**Y**	**Y**	**N**	**N**	**U**	**Y**
Strauss 2019	**Y**	**Y**	**Y**	**Y**	**N**	**N**	**U**	**NA**
Szarfman 1981	**Y**	**N**	**Y**	**Y**	**N**	**N**	**Y**	**NA**
Talvani 2006	**Y**	**N**	**Y**	**U**	**N**	**N**	**Y**	**NA**
Thomas 2012	**Y**	**Y**	**Y**	**Y**	**N**	**N**	**Y**	**NA**
Torreao 2015	**Y**	**N**	**Y**	**U**	**N**	**N**	**Y**	**Y**
Torres 2010 (IGE)	**Y**	**Y**	**Y**	**Y**	**N**	**N**	**Y**	**NA**
Uellendahl 2016	**Y**	**N**	**Y**	**U**	**N**	**N**	**N**	**Y**

Valerio 2011	**Y**	**Y**	**Y**	**Y**	**N**	**N**	**Y**	**Y**
Vasconcelos 2009	**Y**	**Y**	**Y**	**Y**	**N**	**N**	**Y**	**NA**
Vasconcelos 2015	**Y**	**N**	**Y**	**Y**	**N**	**N**	**U**	**Y**
Venegas 2009	**Y**	**N**	**Y**	**Y**	**N**	**N**	**U**	**Y**
Vercosa 2007	**Y**	**N**	**Y**	**U**	**N**	**N**	**Y**	**NA**
Vicco 2014	**Y**	**Y**	**Y**	**U**	**N**	**N**	**Y**	**Y**
Vicco 2013	**Y**	**Y**	**Y**	**Y**	**N**	**N**	**Y**	**Y**
Villacorta 2006	**Y**	**Y**	**Y**	**Y**	**N**	**N**	**U**	**Y**
Villar 2004	**Y**	**Y**	**Y**	**Y**	**N**	**N**	**Y**	**Y**
Viotti 2009	**Y**	**Y**	**Y**	**Y**	**N**	**N**	**Y**	**Y**
Vitelli-Avelar 2008	**Y**	**N**	**Y**	**Y**	**N**	**N**	**N**	**NA**
Vizzoni 2018	**Y**	**Y**	**Y**	**Y**	**Y**	**N**	**Y**	**Y**
Volpato 2017	**Y**	**N**	**Y**	**Y**	**N**	**N**	**Y**	**NA**
Wallukat 2010	**Y**	**N**	**Y**	**Y**	**N**	**N**	**Y**	**U**
Wang 2013	**Y**	**Y**	**Y**	**Y**	**N**	**N**	**N**	**U**
Wang 2010 (JCF)	**Y**	**Y**	**Y**	**Y**	**N**	**N**	**N**	**U**

Wang 2011	**Y**	**Y**	**Y**	**Y**	**N**	**N**	**N**	**U**
Wang 2010 (JCP)	**Y**	**Y**	**Y**	**Y**	**N**	**N**	**N**	**U**
Wang 2012	**Y**	**Y**	**Y**	**Y**	**N**	**N**	**N**	**U**
Ward 1999	**Y**	**Y**	**Y**	**U**	**N**	**N**	**U**	**Y**
Zafra 2008	**Y**	**N**	**Y**	**Y**	**N**	**N**	**Y**	**NA**
Zafra 2007	**Y**	**N**	**Y**	**Y**	**N**	**N**	**Y**	**NA**
Zago 2019	**Y**	**N**	**Y**	**Y**	**N**	**N**	**Y**	**NA**
Zerlotti 1994	**Y**	**N**	**Y**	**U**	**N**	**N**	**U**	**NA**
Zicker 1990 (IJE)	**Y**	**Y**	**Y**	**Y**	**Y**	**N**	**Y**	**Y**
Zicker 1990 (AJTMH)	**Y**	**Y**	**Y**	**Y**	**N**	**N**	**Y**	**Y**