

- **Prevalencia de anticuerpos antimuscarínicos en la Enfermedad de Chagas y su relación con la Muerte súbita**

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Prevalencia de serología positiva para Chagas en ciudadanos de la clase 1951 de la Provincia del Chaco, según prevalencia por Departamentos.

Departamentos	Población *	Nº de ciudadanos	% positivos
1 - General Güemes	25.297	239	66,8
2 - 12 de Octubre	17.985	194	60,0
3 - 9 de Julio	16.690	153	59,4
4 - Almirante Brown	13.778	139	58,3
5 - O'Higgins	15.009	125	54,8
6 - General Belgrano	10.640	82	52,6
7 - Santa María de Oro	10.817	71	51,2
8 - Maipú	18.120	149	50,3
9 - Independencia	13.100	117	47,4
10 - Quitilipi	23.196	248	46,8
11 - Mayor Fontana	31.302	319	46,4
12 - 25 de Mayo	22.452	170	45,5
13 - Chacabuco	14.654	164	43,2
14 - San Lorenzo	12.656	109	42,5
15 - Pcia. de la Plaza	11.760	101	39,0
16 - General Donovan	9.770	103	38,1
17 - Sargento Cabral **	10.930	211	37,5
18 - Tapenaga **	7.305		
19 - General San Martín	39.220	379	37,0
20 - Bermejo	20.432	207	31,1
21 - Libertad	6.410	54	30,1
22 - Cte. Fernández	52.079	482	28,8
23 - 1º de Mayo	6.536	60	26,6
24 - San Fernando	156.475	1.093	17,5
Totales	566.613	4.982	37,2

* Censo 1970.

** Fueron considerados juntos por razones especiales.

- STUDY DESIGN AND METHODS
- From June 2006 to March 2007 a sample of 1455 blood donors was recruited from two blood banks in Chaco province, an area of Argentina with highly endemic *T. cruzi* infection. Samples were tested by three epimastigote lysate enzyme immunoassays (EIAs), one recombinant antigen EIA, two indirect hemagglutination assay (IHA) tests, a particle agglutination assay (PA), and a research *trans*-sialidase inhibition assay (TIA). Sensitivity and specificity were estimated using latent class analysis (LCA).
- RESULTS
- **LCA estimated the consensus prevalence of *T. cruzi* infection at 24.5%.**

Panel Diario de Sueros del INP Dr. Mario Fatała Chabén.

Nº Protocolo	ELISA INP Corte DO 0,200	HAI INP Corte 1/32	IFI INP Corte 1/32	CHAGAT EK ELISA DO/CO	HAI CHAGAS POLYCH ACO Corte 1/8	CHAGAT EST RECOMB. WIENER DO/CO	BiosChile DO/CO	Recombina nt e Lemos DO/CO	CHAGAN OSTICON
140304	0,396	256	128	8.1	128				2
140308	0,337	256	128	8.2	1024				3
140312	0,511	256	128	8.2	128				3
140613	0,129	NR	NR	1.7/1.9	8/4cM	1.8	1.0	2.0	3
140325	0,237	64	128	4.2	32				3
140328	0,413	256	128	8.4	>1024				3
140334	0,046	NR	NR	0.5	NR				-
140336	0,034	NR	NR	0.4	NR				1 / -
140343	0,244	256	128	7.5	64				2
140345	0,367	256	128	8.7	1024				3
140346	0,309	128	128	7.8	512				3
140347	0,030	NR	NR	0.7	NR	1.0	0.9	1.0	1 / 1
140348	0,3 69	256	128	9.1	256				3
140353	0,309	256	128	8.8	512				2
140359	0,323	128	128	8.0	256				2
140360	0,302	256	128	8.0	256				3
140361	0,071	NR	NR	1.1/1.5	8-/4cM	1.6	1.1	1.8	3
140362	0,045	NR	NR	0.4	NR				-
140364	0,283	64	32	7.7	512				3
140365	0,148	64	32	3.6	32				3
140366	0,157	32	128	3.9	32				3
140370	0,272	256	128	7.4	256				3
140371	0,120	NR	32	2.7	32	3.4			2
140375	0,338	256	128	8.2	512				3
140377	0,231	256	32	6.5	64				3
140177	0,317	256	128	6.2	256				2
140178	0,343	256	128	7.8	128				3
140621	0,030	NR	NR	0.6	NR				1 / 1
140180	0,026	NR	NR	0.4	NR				-
140181	0,268	64	128	5.8	256				2
140602	0,050	NR	NR	0.4	NR				-
140183	0,325	128	128	7.9	512				2
140184	0,320	256	128	8.2	256				2
140185	0,043	NR	NR	0.4	NR				-
140189	0,277	256	128	5.8	128				2
140190	0,374	128	128	7.2	64				3
140192	0,391	256	128	8.2	128				3
140193	0,317	256	128	8.1	512				3
140199	0,342	64	128	6.1	32				2
140200	0,342	256	128	7.4	128				2
140201	0,385	256	128	9.4	512				3
140202	0,275	256	128	8.0	256				2
140203	0,184	64	64	3.7	32				3
140206	0,224	128	128	6.6	64				3
140207	0,332	128	128	7.8	64				2
140208	0,302	256	128	8.6	256				2

140358	0,126	NR	NR	0.4	16/- cM				2
140373	0,031	NR	NR	0.5	NR				-
140374	0,044	NR	NR	0.4	NR				-
140187	0,032	NR	NR	0.4	NR				-
140194	0,036	NR	NR	0.4	NR				-
140196	0,046	NR	NR	0.3	8/-cM	0.5	0.6	0.4	-
140204	0,075	NR	NR	1.5/1.4	16/16cM	2.4			3
140205	0,112	NR	NR	3.4/3.2	32/32cM	5.8			2
140210	0,150	64	64	3.1	128				2
140212	0,012	NR	NR	0.5	NR				-
140214	0,346	256	128	8.8	128				3
140215	0,037	NR	NR	0.4	NR				-
140217	0,038	NR	NR	0.5	NR				-
140225	0,032	NR	NR	0.4	NR				-
140225	0,032	NR	NR	0.4	NR				-
140386	0,407	256	128	7.3	512				2
140398	0,374	256	128	8.6	256				3
140405	0,475	256	128	9.2	256				2
140409	0,331	256	128	7.4	512				3
140217	0,038	NR	NR	0.9/1.0	8/4cM	1.0	0.9	1.2	1 / 1
140623	0,012	NR	NR	0.6	NR				-
140339	0,103	32	32	3.3	16	3.7	1.9	4.8	2
140355	0,176	256	64	5.0	128				3
140427	0,410	256	128	8.1	512				2
140429	0,322	256	128	7.2	128				2
140433	0,302	256	128	7.6	1024				2
140434	0,095	NR	NR	1.8/1.8	16/16cM	3.3			2 / 3
140436	0,407	256	128	8.7	256				2
140439	0,033	NR	NR	0.4	NR				-
140442	0,075	NR	NR	2.0/1.9	64/32cM	3.6			3
140750	0,093	128	NR	3.2/2.9	16/16cM	4.9			3
140751	0,361	256	128	9.5	>256				3
140752	0,031	NR	NR	0.4	NR				-
140754	0,124	64	NR	3.0/3.0	16	3.9			2
140755	0,052	NR	NR	1.2/1.1	NR/NR	1.6	0.8	1.9	- / -
140756	0,395	256	128	9.3	>256				2
140757	0,033	NR	NR	0.3	NR/NR				-
140758	0,362	256	64	9.3	>256				2
140759	0,056	NR	NR	0.5	8-	0.8	0.5	0.5	-
140760	0,083	NR	NR	2.3/2.0	NR/4cM	5.1	1.0	2.5	2
140761	0,349	256	64	9.6	>256				2
140762	0,028	NR	NR	0.4	NR/NR				-
140763	0,311	256	128	9.1	>256				2
140764	0,081	NR	NR	0.2	NR/NR				-
140765	0,046	NR	NR	0.6	NR				-

140770	0,391	256	128	9.0	>256					3
140771	0,018	NR	NR	0.4	NR					-
140772	0,051	NR	NR	0.4	NR					-
140773	0,218	64	32	6.2	32					3
140774	0,348	32	128	8.6	>256					2
140775	0,368	NR	64	8.2	128					2
140776	0,268	256	128	9.2	256					2
140778	0,369	256	128	9.1	256					3
140781	0,015	NR	NR	0.5	NR					-
140782	0,368	256	128	10.2	256					2
140783	0,114	32	NR	2.0/1.9	16	2.3				2
140697	0,152	64	NR	4.9/4.3	16	5.5				2
140698	0,046	NR	NR	0.5	NR/NR					-
14069 9	0,425	64	128	10.3	256					3
140700	0,046	NR	NR	0.4	NR/NR					-
140701	0,061	NR	NR	0.4	NR/NR					-
140702	0,053	NR	NR	0.5	NR/NR					-
140703	0,279	64	64	7.9	64					2
140704	0,301	128	128	9.4	256					1 / 1
140705	0,301	128	128	7.2	64					2
140706	0,137	NR	NR	3.5/2.9	NR/4cM	3.7				3
140707	0,252	64	32	6.3	256					3
140708	0,059	NR	NR	0.4	NR					-
140709	0,182	32	NR	6.5	8/8	5.3				2
140710	0,104	NR	NR	1.0	NR/NR	1.0	0.9	1.0		- / -
140711	0,180	64	NR	6.0	32					3
140712	0,290	64	64	7.7	256					3
140713	0,107	NR	NR	1.3/1.1	32	1.9	1.2	2.1		3
140714	0,334	256	128	8.8	128					3
140715	0,045	NR	NR	0.3	NR					-
140716	0,355	128	128	8.5	256					3
140718	0,128	256	NR	4.2/3.1	32	5.1				3
140719	0,111	NR	NR	4.0/3.1	8-/4cM	5.6				3
140720	0,111	NR	NR	2.9/2.2	8	3.7	2.0	3.5		3
140721	0,386	256	128	9.1	256					3
140722	0,160	64	NR	6.9/5.5	128	5.8				3
140723	0,388	256	128	9.4	256					2
140724	0,071	NR	NR	0.8	NR	1.5	0.7	0.7		-
14 0725	0,348	256	128	9.7	256					3
140726	0,039	NR	NR	0.7	8-/NR	1.5	0.7	0.8		1 / 1
140727	0,075	NR	NR	0.9	NR	3.1	0.8	1.2		2
140728	0,314	256	128	8.6	256					3
140730	0,040	NR	NR	0.3	NR					-
140731	0,338	256	128	9.0	256					3
140732	0,296	64	128	7.6	64					3
140734	0,030	NR	NR	0.3	NR					-
140735	0,330	256	128	9.3	256					3
140738	0,058	NR	NR	0.4	NR					-
140739	0,037	NR	NR	0.3	NR					-
140741	0,079	NR	NR	0.5	NR					-
140742	0,302	64	128	8.4	128					2
140743	0,319	256	128	9.7	256					3
140858	0,041	NR	NR	0.3	NR/NR					-

140859	0,334	256	128	9.0	256				2
140860	0,269	128	64	6.0	128				2
140863	0,346	256	128	7.3	256				2
140865	0,373	256	128	7.1	128				2
140867	0,041	NR	NR	0.3	NR/NR				-
140868	0,035	NR	NR	0.4	NR				-
140869	0,086	NR	NR	0.6	8-				-
140870	0,040	NR	NR	0.2	NR				-
140871	0,387	256	64	7.2	256				2
140876	0,332	256	128	7.9	128				2
140877	0,358	64	128	8.5	256				3
140878	0,032	NR	NR	0.4	NR/NR				-
140879	0,068	NR	NR	0.6	NR				2
140880	0,024	NR	NR	0.4	NR				-
140881	0,020	NR	NR	0.3	NR				-
140883	0,044	NR	NR	0.2	8-				-
140884	0,038	NR	NR	0.5	NR				-
140885	0,047	NR	NR	0.9	NR/NR	0.8	0.8	1.0	- / -
140886	0,317	256	128	7.9	32				2
140887	0,047	NR	NR	0.3	NR				-
140888	0,328	256	64	7.6	64				2
140889	0,300	256	128	6.6	64				2
140892	0,381	NR	128	6.9	256				3
140895	0,289	256	128	7.1	64				2
140896	0,029	NR	NR	0.4	NR				2
140897	0,045	NR	NR	0.3	NR				-
140898	0,029	NR	NR	0.3	NR				-
140899	0,275	256	128	7.2	64				2
140900	0,299	128	128	6.9	128				2
140901	0,286	256	128	7.7	64				3
140902	0,345	256	128	7.5	256				3
140796	0,076	NR	NR	2.3/1.8	16	2.2	1.0	2.8	2
140801	0,067	NR	NR	1.7/1.3	16-	4.9	0.9	2.5	2
140806	0,054	NR	NR	0.8	16	0.9	0.8	1.3	2
140843	0,063	32	NR	0.8	16/NR	2.5	1.0	1.0	-
140846	0,254	128	64	6.4	128				3
140768	0,019	32	NR	0.3	NR				-
140974	0,174	NR	64	2.1/1.9	8/4cM	1.7			3
140975	0,187	NR	256	4.9/4.2	16	5.5			2
140976	0,023	NR	NR	0.4	NR				-
140977	0,033	NR	NR	0.4	NR				-
140978	0,022	NR	NR	0.3	NR				-
140979	0,403	256	128	8.6	256				2
14 0980	0,283	256	128	8.7	256				2
140981	0,039	NR	NR	1.3/1.2	8/4cM	1.1	0.8	1.3	2
140982	0,017	NR	NR	0.3	NR/NR				-
140984	0,329	256	128	9.0	256				2
140985	0,068	NR	NR	0.5	NR				-
140986	0,334	64	128	7.4	256				2
140987	0,387	256	128	8.3	128				3
140988	0,035	NR	NR	0.3	NR				-
140090	0,422	256	128	1.9	NR/NR				1 / 2
140990	0,026	NR	NR	0.4	NR				-

140991	0,313	256	128	7.8	256				2
140992	0,026	NR	NR	0.5	NR				2
140993	0,029	NR	NR	0.4	NR				-
140994	0,079	NR	NR	2.0/2.0	8/4-cM	0.5	1.0	1.7	3
140995	0,090	64	32	3.3	16				2
140996	0,036	NR	NR	0.5	NR				-
140997	0,053	NR	NR	0.4	NR				-
140998	0,037	NR	64	3.1/2.7	16	2.3			2
140999	0,138	NR	NR	2.5/2.4	16	2.1			2
140001	0,035	NR	NR	0.3	<8				-
141002	0,333	256	128	7.3	256				2
141003	0,037	NR	NR	0.7	NR	0.7	0.8	0.7	-
141005	0,165	128	128	5.8	64				2
141008	0,024	NR	NR	0.3	NR				-
141009	0,072	NR	128	1.7/1.4	32	4.1			3
141010	0,065	NR	NR	0.5	NR				-
141011	0,332	NR	128	7.1	64				2
141012	0,066	32	128	2.1/1.9	8-/4cM	5.3	1.2	4.6	3
141013	0,016	NR	NR	0.6	NR				-
14101 4	0,299	256	128	7.8	128				3
141015	0,067	NR	NR	2.3/2.1	8-/4-cM	5.1	1.3	3.1	3
141016	0,022	NR	NR	0.4	NR				-
141017	0,022	NR	NR	0.4	NR				-
141018	0,268	256	128	9.1	256				2
141019	0,340	256	128	10.3	256				2
141020	0,312	32	64	8.0	128				2
141021	0,019	NR	NR	0.6	NR				-
141022	0,018	NR	NR	0.4	NR				-
141024	0,297	256	128	8.0	256				3
141026	0,045	NR	NR	0.3	NR				-
141027	0,026	NR	NR	0.5	NR				-
141028	0,025	NR	NR	0.4	NR				-
141029	0,047	NR	NR	0.4	16/NR				-
141030	0,034	NR	128	0.9	NR	0.7	0.5	0.9	2
141031	0,297	256	128	7.8	256				3
141039	0,372	256	128	8.3	256				2
141040	0,024	NR	NR	0.4	NR				-
141042	0,041	NR	NR	0.3	NR				-
141044	0,015	NR	NR	0.4	NR				-
14 1045	0,280	128	128	7.2	64				2
141046	0,020	NR	NR	0.4	NR				-
141047	0,202	32	64	3.3	NR/4cM				2/3
141049	0,354	64	128	7.3	256				2
141050	0,279	256	128	6.5	128				2
141051	0,089	NR	NR	1.8/1.4	32	1.3	1.0	2.0	2
141052	0,307	64	128	7.1	128				2
141053	0,104	NR	64	3.0/3.0	8/4cM	3.7			2
141054	0,063	NR	NR	0.4	NR				-
141055	0,207	256	128	4.9	64				2
141057	0,028	NR	32	0.4	NR				-
141059	0,080	NR	32	1.1/1.1	8/4cM	1.6	1.0	1.5	2
141063	0,046	NR	32	0.7	16/16cM	0.7	0.8	0.6	1/1
141064	0,361	256	128	9.6	256				2

141065	0,058	32	NR	0.3	NR				-
141066	0,021	NR	NR	0.4	NR				1 / -
141070	0,311	128	128	8.9	256				2
141071	0,208	64	64	6.0	128				2
141072	0,033	NR	NR	0.4	NR				-
141073	0,030	NR	NR	0.5	NR				-
141074	0,129	32	64	2.7	16				2
141079	0,047	32	NR	1.6/1.3	8/4cM	1.8	1.1	2.1	2
141080	0,102	NR	32	3.8/3.0	16	4.5			2
141081	0,026	NR	NR	0.4	NR				-
141082	0,338	256	128	9.2	256				2
141083	0,275	256	128	7.9	128				2
141084	0,014	NR	NR	0.3	NR				-
141085	0,308	256	128	8.5	>256				2
141087	0,391	256	128	8.8	>256				2
141088	0,036	NR	NR	0.3	NR				-
141091	0,056	NR	NR	0.5	NR				-
141092	0,367	64	128	8.3	128				2
141093	0,379	NR	128	8.4	64				2
141099	0,205	64	128	4.9	64				2
141100	0,424	256	128	7.0	64				2
141101	0,0 88	32	NR	2.3/2.1	16	4.5			2
141102	0,045	NR	NR	1.5/1.3	8/8cM	2.0	0.7	1.5	2
141103	0,050	NR	NR	0.3	NR				-
141104	0,358	256	128	7.4	256				2
141105	0,303	256	128	7.6	128				2
141106	0,040	NR	NR	0.8	NR	0.6	0.7	0.5	-
141107	0,042	NR	NR	0.3	NR				-
141108	0,033	NR	NR	0.4	NR				-
141109	0,203	NR	64	5.1	256				2
141110	0,205	256	128	5.7	128				2
141111	0,055	64	NR	1.9/1.8	16	1.7			2
141112	0,054	64	NR	2.4/2.2	32	1.6			2
141124	0,024	NR	NR	0.3	NR				-
141114	0,074	NR	NR	2.6	16	1.2	0.9	2.1	2
141116	0,072	NR	NR	0.4	NR				-
141117	0,033	NR	NR	0.3	NR				-
141118	0,051	NR	NR	0.4	NR				-
141120	0,313	256	128	7.9	>256				3
141121	0,034	NR	NR	0.2	NR				-
141122	0,108	NR	NR	3.3/2. 9	16	4.6			3
141123	0,059	NR	NR	0.6	NR				-

Chaganostricón Sueros del Hospital de Clínicas N= 300 1F+ y 1D = 99.3%

Buenos Aires, 23 de diciembre de 200 9

- La muerte súbita, mediada por arritmia severa, aún en ausencia de evidencias de enfermedad previa, es el aspecto médico biológico y social mas conmoviente, de aquello que se ha difundido en la creencia popular, como la existencia de un mal.

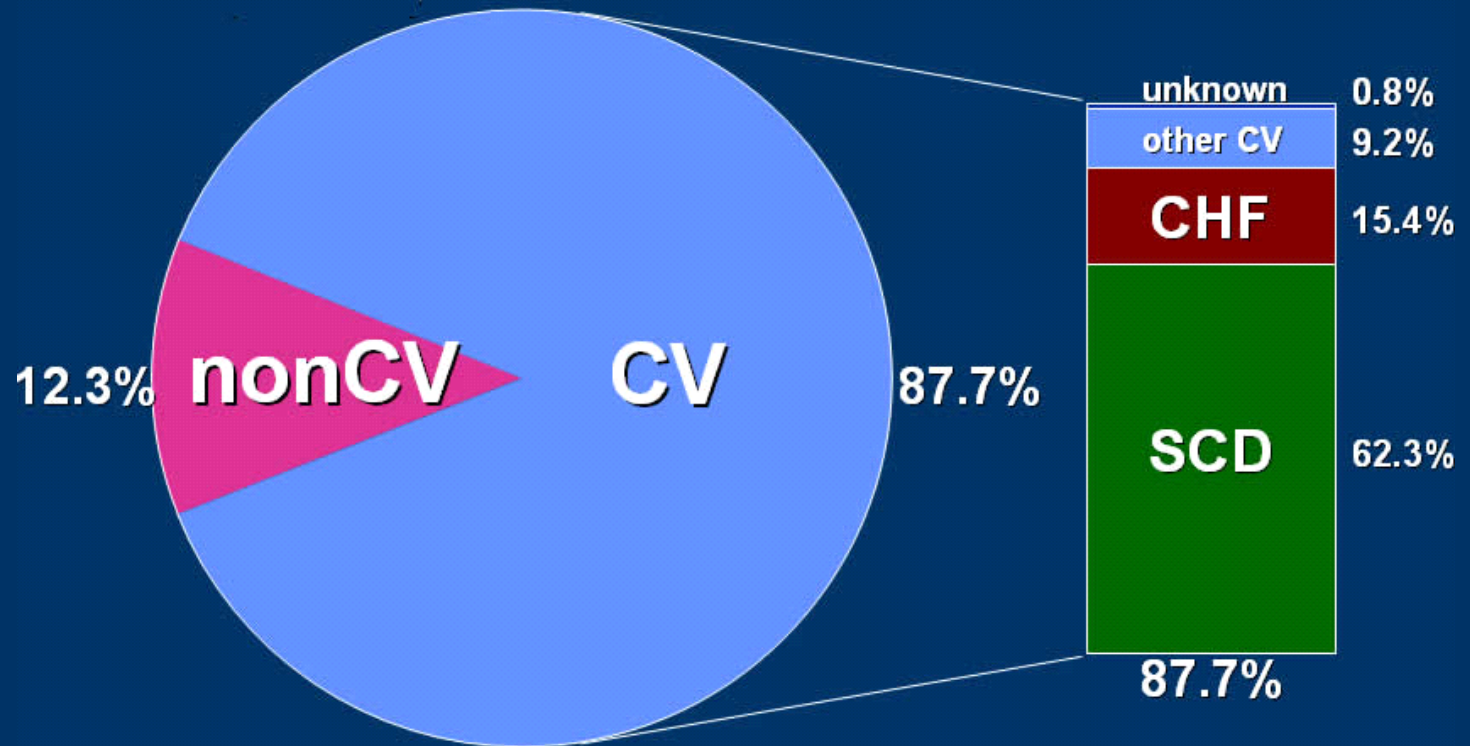
EL MAL DE CHAGAS

- La muerte súbita caracteriza el 60% de los decesos que se producen en infectados por T. cruzi

- El riesgo de muerte súbita fue evaluado por Anis Rassi Junior. Su valorización ha sido sistematizada. Aún así hasta el presente no existe una explicación consistente de los mecanismos fisiopatológicos que disparan de forma aguda, el evento final.

Chagas`Heart Disease: Causes of Death

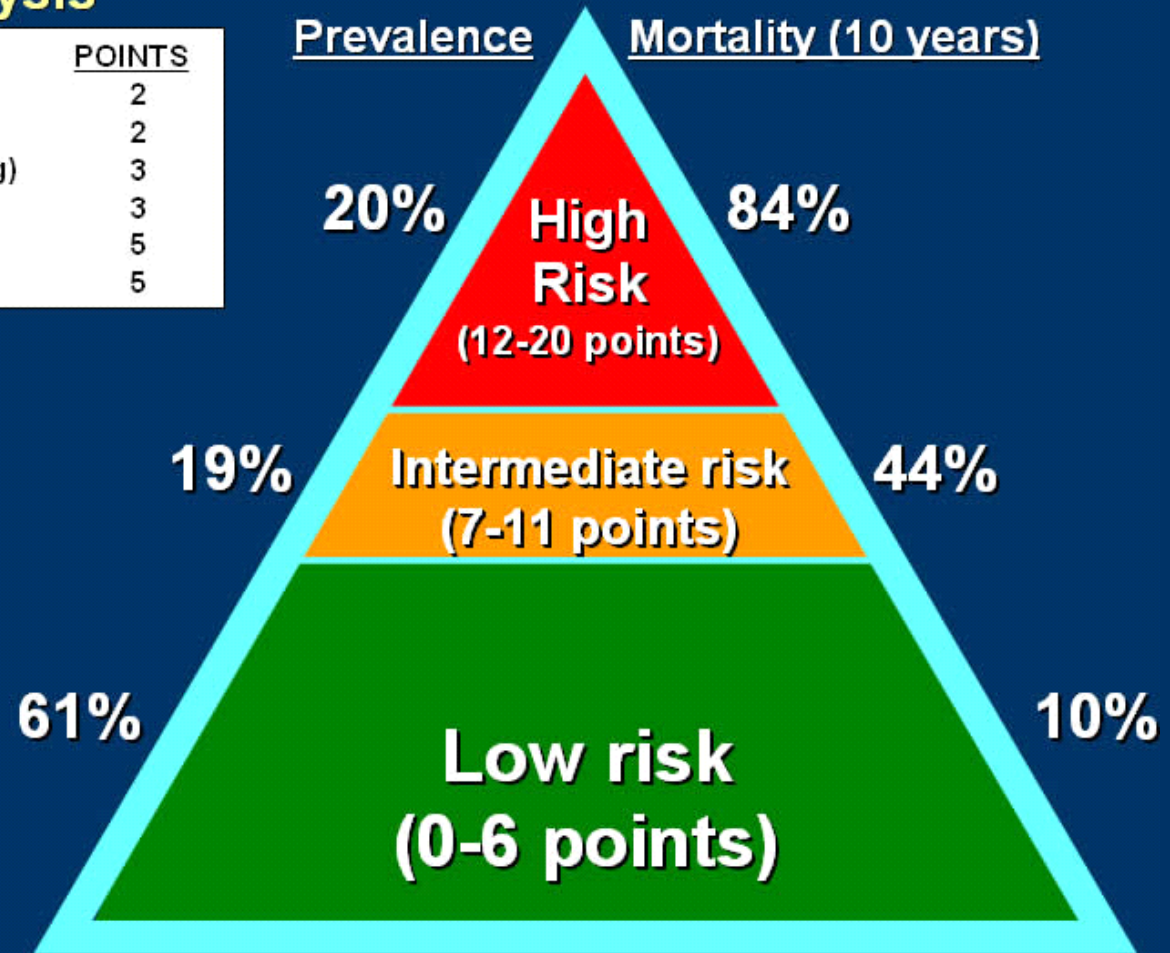
- 424 nonselected outpatients
- mean follow-up: 7.9 ± 3.2 years
- 130 deaths (30.7%)



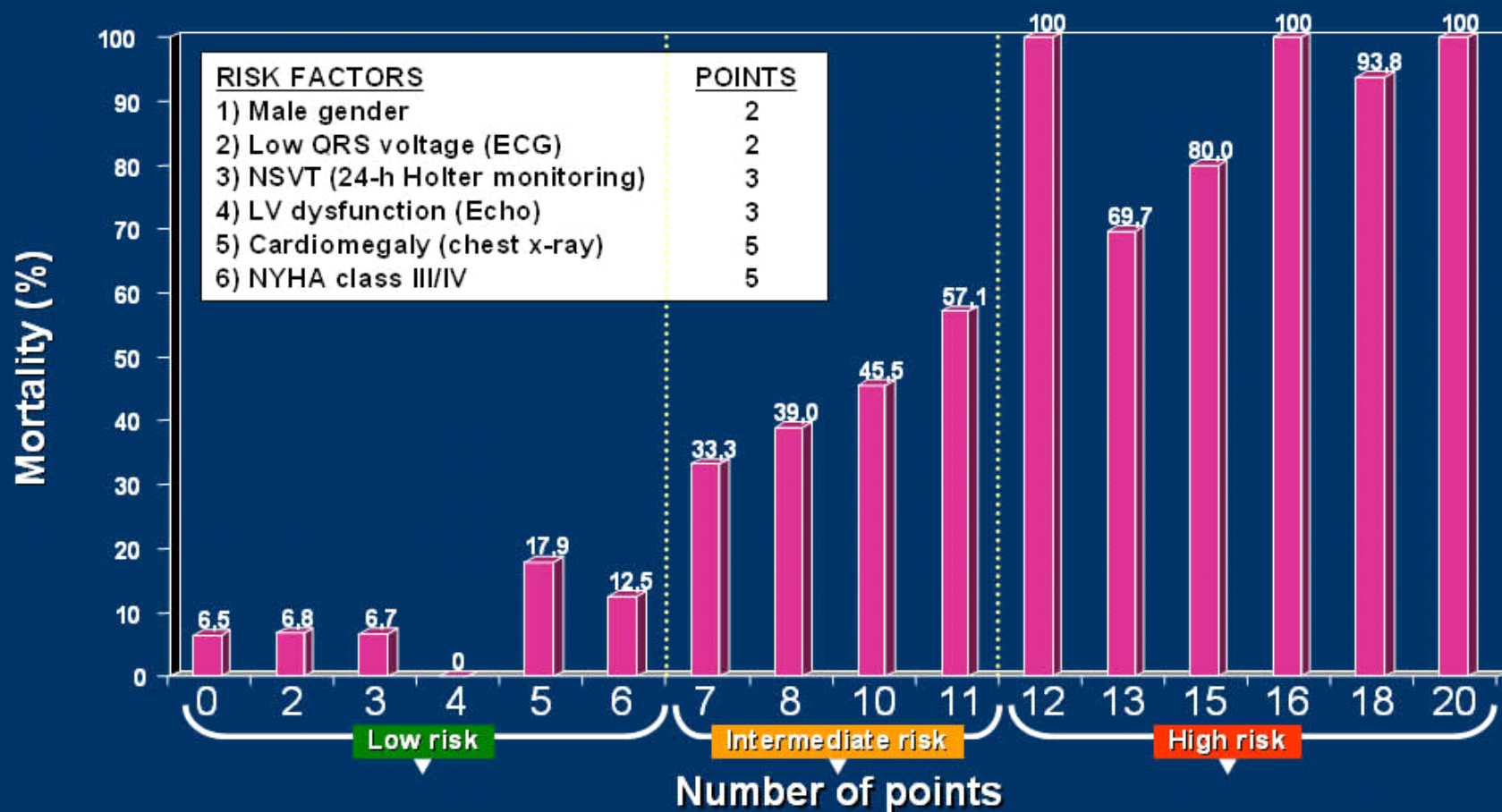
Chagas Heart Disease: Risk of Death

Multivariate analysis

<u>RISK FACTORS</u>	<u>POINTS</u>
1) Male gender	2
2) Low QRS voltage (ECG)	2
3) NSVT (24-h Holter monitoring)	3
4) LV dysfunction (Echo)	3
5) Cardiomegaly (chest x-ray)	5
6) NYHA class III/IV	5



RASSI`score: number of points and mortality in Chagas`heart disease



N of patients	62	59	30	5	39	8	3	41	11	7	1	33	5	5	16	6
%	19	18	9	1,5	12	2,5	1,0	12	3,3	2,1	0,3	10	1,5	1,5	4,8	1,8
Mean fu (yrs)	9,7	9,2	9,1	10	9,2	8,3	7,2	7,7	7,8	6,2	2,6	6,0	4,2	2,3	2,6	0,6

Death at 5-years and at 10-years by Risk Category in the Development and Validation Samples

Risk Category	Points	Development Sample (N=331)			Validation Sample (N=153)		
		n(%)	Death at 5-years (%)	Death at 10-years (%)	n(%)	Death at 5-years (%)	Death at 10-years (%)
Low	0-6	203 (61.3%)	2	10	100 (65.4%)	0	9
Intermediate	7-11	62 (18.7%)	18	44	30 (19.6%)	15	37
High	≥12	66 (19.9%)	63	84	23 (15.0%)	53	85
		PSEP	0.61	0.74	PSEP	0.53	0.76
C statistic (95% CI)		0.84 (0.79-0.89)			0.81 (0.72-0.90)		

NEJM 2006; 355: 799-808

Circulation

JOURNAL OF THE AMERICAN HEART ASSOCIATION



Prognostic Value of QT Interval Parameters for Mortality Risk Stratification in Chagas' Disease: Results of a Long-Term Follow-Up Study

Gil Salles, Sergio Xavier, Andrea Sousa, Alejandro Hasslocher-Moreno and Claudia Cardoso

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Univariate Cox Survival Analysis for Prediction of Chagas' Disease–Related Mortality				
	Survivors (n=676)	Nonsurvivors (n=62)	Hazard Ratio	95% CI
Clinical variables				
Age (10 years)	45.90 (11.59)	51.03 (11.39)	1.34	1.09–1.66†
Male gender	45.7%	51.6%	1.31	0.80–2.16
Heart failure	5.9%	51.6%	12.34	7.49–20.32*
Syncope	2.2%	22.6%	8.20	4.52–14.88*
Radiological variables				
Cardiomegaly	12.9%	33.9%	11.66	6.86–19.83*
Electrocardiographic variables				
Isolated RBBB	14.6%	8.1%	0.46	0.19–1.15
Isolated LAFB	2.7%	12.9%	5.00	2.37–10.53*
RBBB + LAFB	22.2%	46.8%	2.88	1.72–4.66*
LBBB	2.4%	12.9%	5.93	2.81–12.49*
Q-wave MIs	1.8%	24.2%	12.81	7.12–23.04*
Ischemia	6.5%	21.0%	4.09	2.21–7.59*
PVCs	12.0%	41.9%	5.12	3.09–8.49*
First/second AV block	5.6%	16.1%	2.28	1.08–4.79†
Maximum QRS duration (10 ms)	99.76 (25.86)	123.71 (28.11)	1.32	1.21–1.44*
QRSd (10 ms)	36.81 (13.37)	38.71 (14.85)	1.10	0.92–1.32
Heart rate (10 bpm)	69.03 (11.42)	71.82 (16.29)	1.24	1.01–1.52†
Echocardiographic variables				
Diastolic LV (5 mm)	51.77 (6.14)	63.31 (10.58)	1.96	1.76–2.19*
Systolic LV (5 mm)	33.89 (7.77)	51.92 (13.48)	1.74	1.61–1.89*
Ejection fraction (5%)	63.31 (11.46)	37.16 (17.42)	0.64	0.59–0.68*
LV mass (50g)	186.33 (59.01)	261.35 (84.53)	1.67	1.50–1.88*
Mod/sev LV systolic dysfunction	9.3%	74.2%	24.20	13.65–42.93*
LV aneurysm	13.3%	33.9%	3.04	1.80–5.15*
ECG repolarization parameters				
QTcmax (50 ms ^{1/2})	437.77 (34.82)	482.65 (41.12)	4.03	2.98–5.45*
TpT _{max} (10 ms)	100.21 (13.85)	112.74 (21.23)	1.64	1.42–1.90*
QTd (10 ms)	49.68 (13.41)	80.00 (26.08)	1.59	1.49–1.70*
QT-VC (1%)	4.32 (1.03)	6.31 (1.71)	2.10	1.89–2.34*
JTd (10 ms)	57.29 (17.21)	82.34 (30.30)	1.43	1.33–1.53*

JANS 01481

Identification of antibodies with muscarinic cholinergic activity in human Chagas' disease: pathological implications

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(Accepted 6 July 1993)

Key words: Chagas' disease; Cholinergic antibody; Dysautonomic syndrome; Parasympathetic dysfunctions; Binding and heart contractility

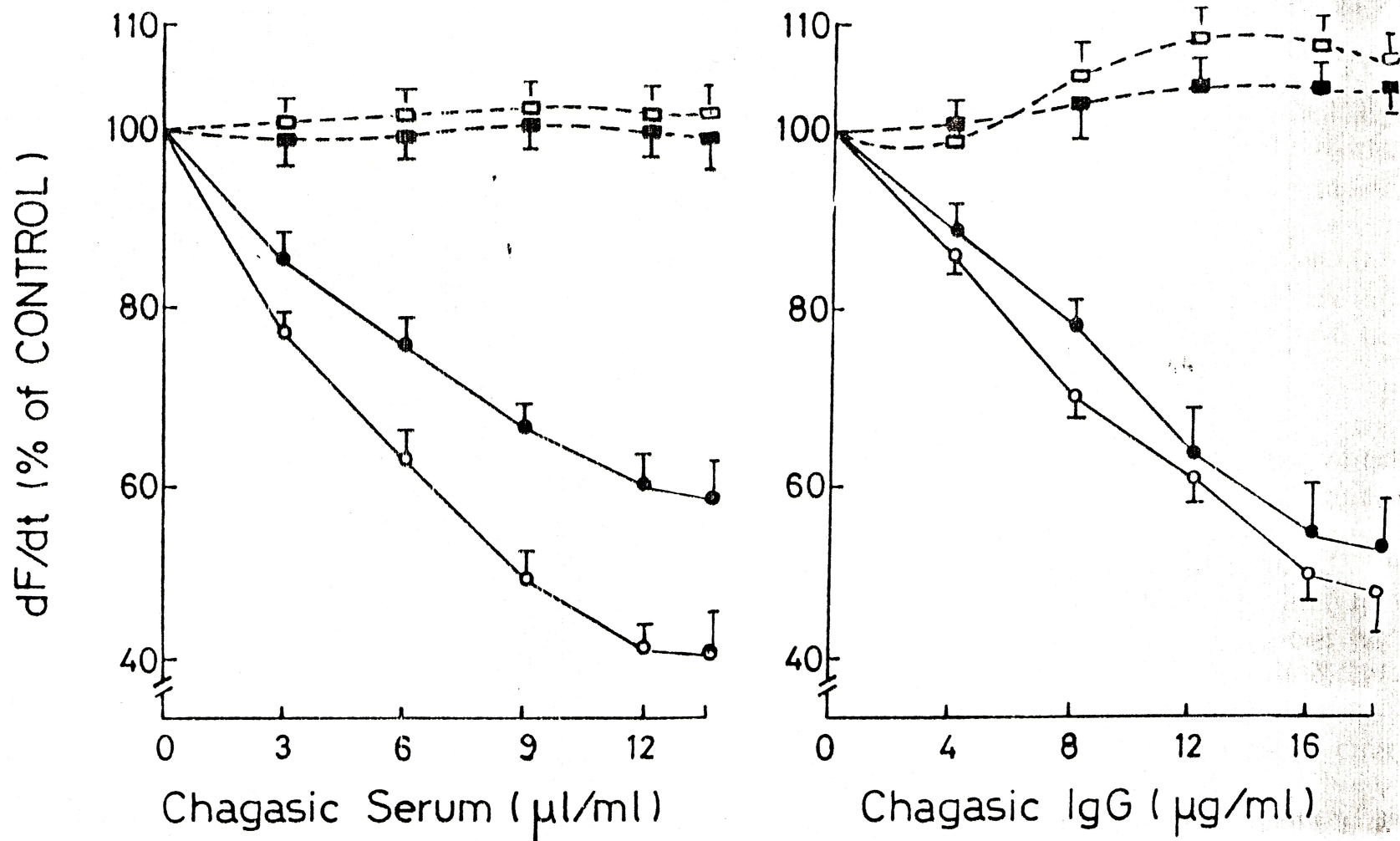


Fig. 2. Effect of different chagasic sera or IgG concentrations on the dF/dt of isolated atria. Atria were suspended in KRB bath as described in Materials and Methods and after equilibration the following reagent were added: serum or IgG T-RBC (●-●), serum or IgG + propranolol (○-○), serum or IgG T-RBC + atropine (■-■) and serum or IgG + propranolol + atropine (□-□). Other details as in Fig. 1. Values are mean $\pm$ SEM of 13 chagasic sera.

TABLE II

Distribution of cholinergic activity of chagasic sera from patients with or without dysautonomia on myocardial contractility

Groups	Presence of cholinergic activity	
	Number positive/total	Percentage
I A	19/22	86
I B	9/24	37
Controls	0/30	0

Isolated rat atria were exposed during 45 min to 16 $\mu\text{g/ml}$ of sera from patients of groups IA, IB and control. Then, the inhibitory effect on dF/dt was evaluated as described in Materials and Methods. Values above 18% of inhibition were taken as positive.



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Human antibodies with muscarinic activity modulate ventricular repolarization: Basis for electrical disturbance

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Masako O. Masuda, Jose H. Nascimento ^a, Antonio C. Campos de Carvalho ^{a,*}

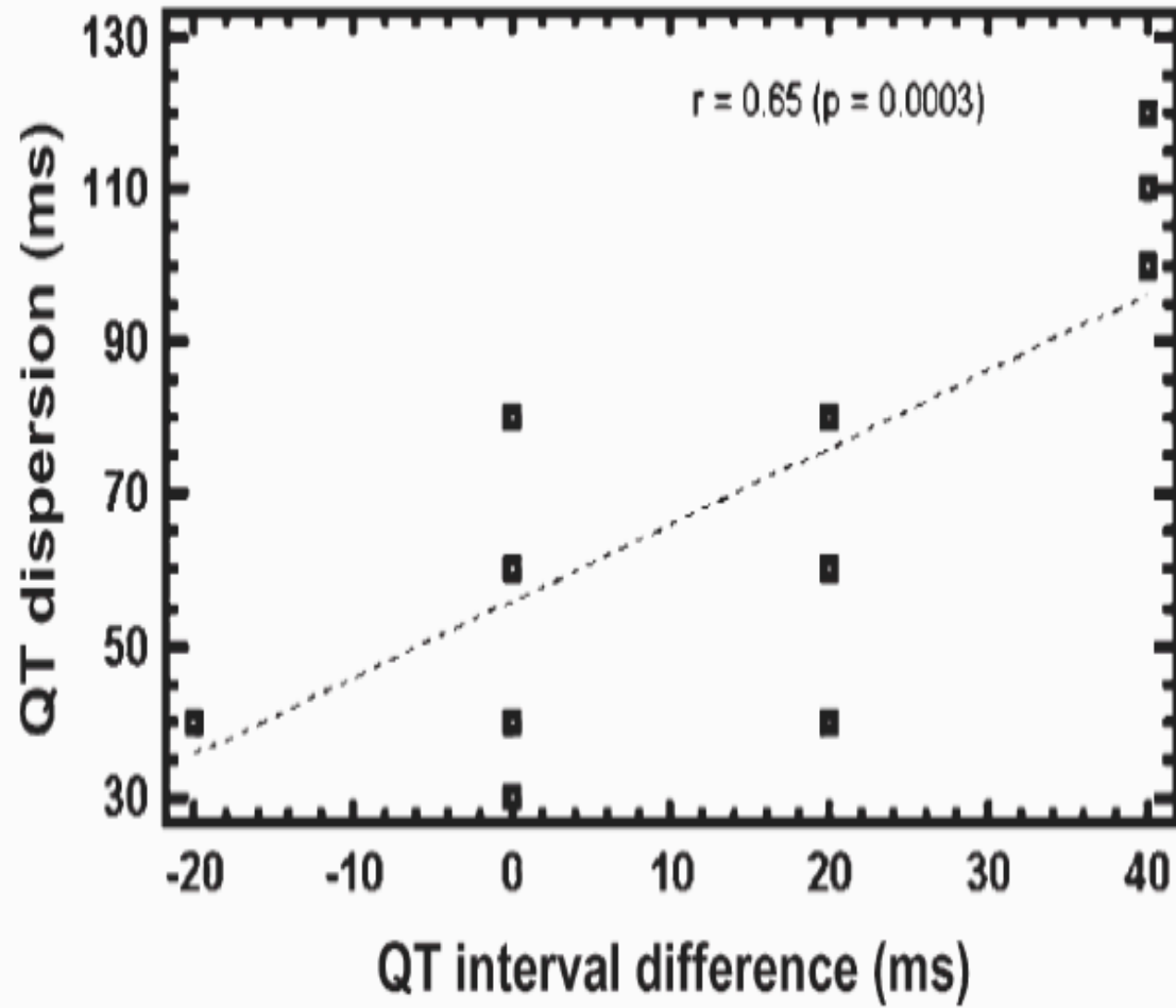
^a *Laboratório de Eletrofisiologia Cardíaca “Antônio Paes de Carvalho”, Instituto de Biofísica Carlos Chagas Filho, Brazil*

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3.3. QT dispersion, maximum QT and maximum corrected QT intervals in the ECG of chronic chagasic patients

QT dispersion of muscarinic patients was significantly greater than QT dispersion of non-muscarinic (respectively, 75.9 ± 5.5 ms vs. 50.0 ± 4.0 ms; $p=0.0003$) (Fig. 1A). On the other hand, maximum QT (447.6 ± 11.7 ms in muscarinic, compared to 425.3 ± 13.0 ms in non-muscarinic; Fig. 1B) and maximum corrected QT intervals (469.6 ± 19.8 ms in muscarinic, compared to 441.1 ± 14.3 ms in non-muscarinic) were not significantly different between muscarinic and non-muscarinic groups (Fig. 1C).

In patients with compensated heart failure, NYHA I/II, QT dispersion, maximum corrected QT and maximum QT intervals were analyzed separately. QT dispersion was greater in the muscarinic than non-muscarinic group (respectively, 82.0 ± 7.5 ms vs. 50.9 ± 4.1 ms; $p=0.002$),

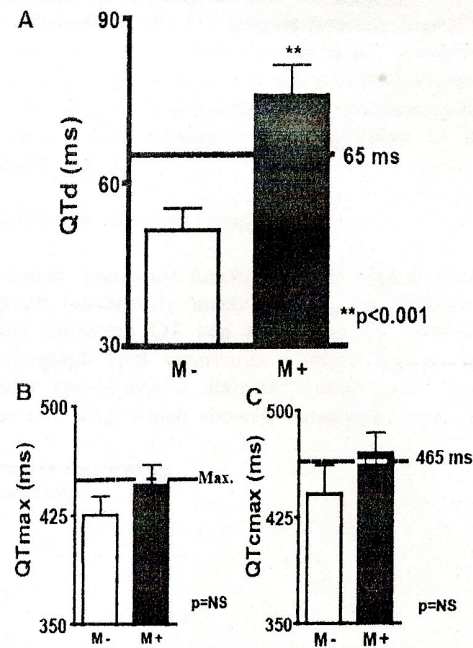


Fig. 1. QT interval dispersion (QTd), QTmax and QTcmax in chronic chagasic patients. QTd was significantly increased in muscarinic group (A). No difference in QTmax and QTcmax interval was observed between non-muscarinic and muscarinic patients (B and C). The dashed lines indicate, in (A) and in (C), the value above which QTd and QTcmax are independent risk factors of sudden death in chronic chagasic patients (6) and in (B) the maximal value of the QT interval.

Table 1

Baseline characteristics of all Chagas disease patients and those without (non-muscarinic) and with (muscarinic) functionally active cardiac muscarinic antibodies

	All patients (<i>n</i> =32)	Non-muscarinic patient (<i>n</i> =15)	Muscarinic patient (<i>n</i> =17)
<i>Clinical variables</i>			
Age, years	57.6±9	55.5±9	59.5±9
Sex, M/F	12/20	5/10	7/10
BMI	21.5±1	22.11±1	21.0±1.2
Syncope	13 (40.6%)	5 (33%)	8 (47%)
Pre-syncope	5 (15.6%)	2 (13.3%)	3 (17.5%)
Palpitations	10 (31%)	3 (20%)	7 (41%)
NYHA (Class III/IV)	11 (34%)	4 (26.6%)	7 (41%)
<i>Echocardiography</i>			
LVEDDI (mm/m ²)	36.4±4	32.7±3	39.7±3***
LVEF%	40.9±5	45.7±1	36.7±2***
<i>Electrocardiography</i>			
Abnormal ECG	24 (75%)	10 (66.6%)	14 (82.4%)
RBBB+LAFB	15 (47%)	10 (66.6%)	5 (29%)
EIA	9 (28%)	0	9 (53%)***

BMI: body mass index, LVEDDI: left ventricular end-diastolic diameter index; LVEF: left ventricular ejection fraction; RBBB+LAFB: right bundle branch block and left anterior fascicular block; EIA: electrically inactive area. Symptoms and ECG parameters refer to number of patients. Age, IMC, and echocardiography parameters are expressed as mean±SD. ****P*<0.001. *P*=NS for all other comparisons.

Artigo Original

Anticuerpos Antirreceptores a Neurotransmisores y su Correlacion con la Alteracion de la Dispersión del QT y de la Variabilidad de la Frecuencia Cardiaca

J Mitelman⁽¹⁾ L.Gimenez⁽¹⁾ L. Acuña⁽¹⁾ M. Tomasella⁽²⁾ F. Cicarelli⁽²⁾ O. Pugliese⁽³⁾
C. Sturgeon⁽³⁾ J. Carradori⁽⁴⁾

CUADRO I
INDETERMINADOS

Edad	Nº pacie.	AcsRN + Totales	dQT ≤65	dQT ≥65		SDNN ≥100	SDNN ≤100	
			AcsRN +	AcsRN +	AcsRN -	AcsRN +	AcsRN +	AcsRN
21-30	25	3 (12%)	3	0	0	1	2	1
31-40	24	5 (20%)	4	1	0	3	2	0
41-50	23	9 (39%)	1	8	1	1	8	3
51-60	36	17 (47%)	6	11	0	6	11	1
Totales	108	34	14	20	1	11	23	5

CUADRO II
ARRÍTMICOS

Edad	Nº pacie.	AcsRN + Totales	dQT ≤65	dQT ≥65		SDNN ≥100	SDNN ≤100	
			AcsRN +	AcsRN +	AcsRN -	AcsRN +	AcsRN +	AcsRN
21-30	10	3 (30%)	3	0	0	2	1	1
31-40	9	1 (11%)	1	0	0	0	1	1
41-50	34	8 (23%)	5	3	1	2	6	2
51-60	49	23 (46%)	4	19	5	0	23	11
Totales	102	35	13	22	6	4	31	15

ARGENTINA

HOSPITAL DE CLINICAS
UNIVERSIDAD NACIONAL DE BUENOS AIRES
DONANTES DE SANGRE
SEROLOGIA PARA T. CRUZI
Nº DE PACIENTES 1040

Donantes de sangre	1021	No React. AC Anti M ₂	98,2%
Donantes de sangre	19	React. AC Anti M ₂	1,8%

ARGENTINA

HOSPITAL ALVAREZ
CIUDAD DE BUENOS AIRES
DR. JORGE MITELMAN
SERVICIO DE CARDIOLOGIA
Nº DE PACIENTES: 504

Indeterminados	242	React. AC Anti M ₂	31,4%
Arrítmicos	262	React. AC Anti M ₂	34,31%

ARGENTINA

INSTITUTO NACIONAL PARA INVESTIGACION
DIAGNOSTICO Y TRATAMIENTO
ENFERMEDAD DE CHAGAS – MARIO FATALA CHABEN
DR. ANDRES RUIZ
DRA. ANA MARIA DE RISSIO
ADULTOS
Nº DE PACIENTES: 438 –
Serología para T. cruzi reactiva

Serología para T.cruzi react.	438	React. AC Anti M ₂	35,29%
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ARGENTINA

INSTITUTO NACIONAL PARA INVESTIGACION
DIAGNOSTICO Y TRATAMIENTO
ENFERMEDAD DE CHAGAS – MARIO FATALA CHABEN

DR. ANDRES RUIZ

DRA. ANA MARIA DE RISSIO

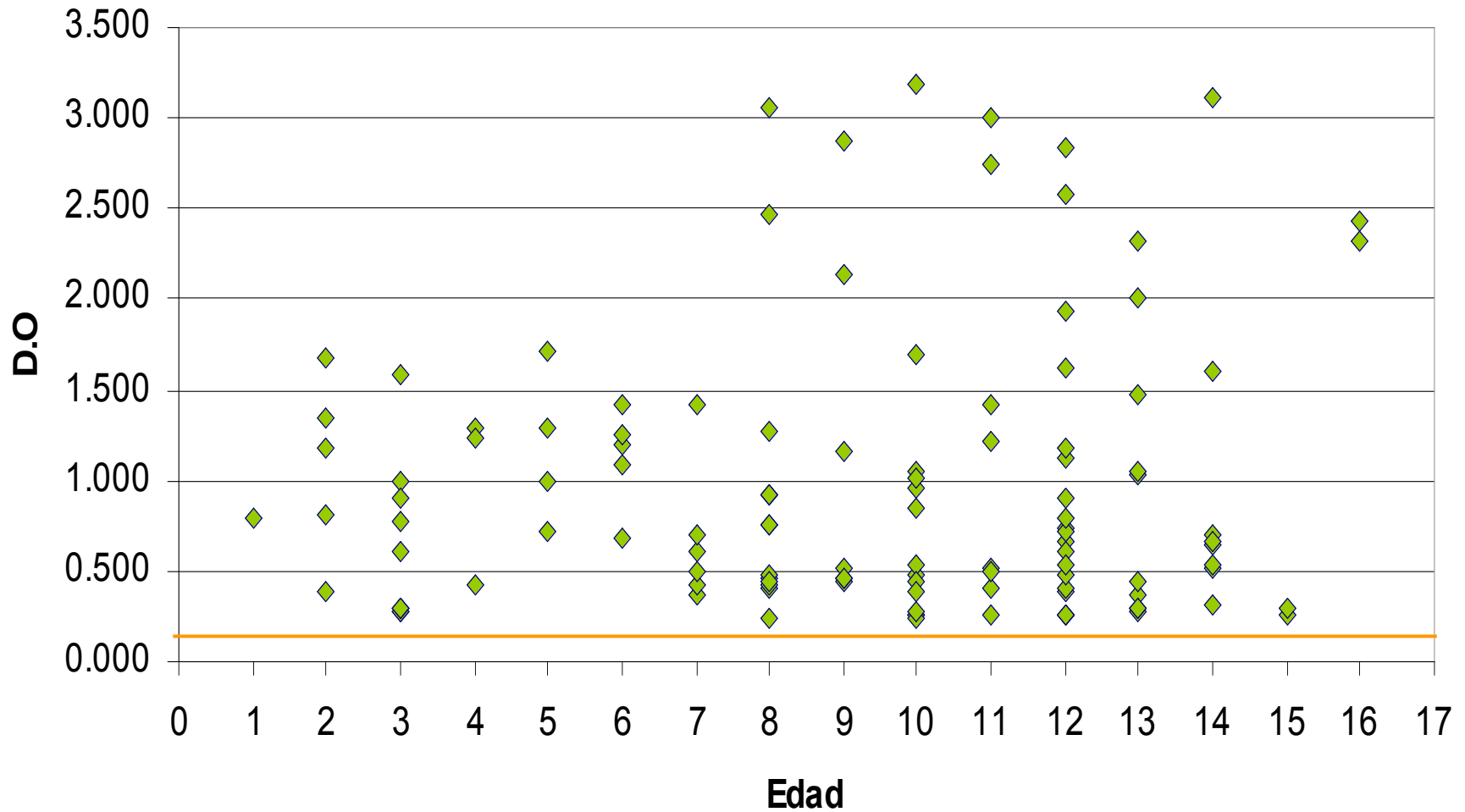
NIÑOS

Nº DE PACIENTES: 386

Serología para T.cruzi reactiva

Entre 9 meses y 7 años	155	React. AC Anti M ₂	22,0%
Entre 8 años y 16 años	231	React. AC Anti M ₂	36,0%

Distribución de la Positividad segun la Edad



BRASIL

HOSPITAL DE CLINICAS
UNIVERSIDAD FEDERAL DE GOIAS
DR. ALEJANDRO LUQUETTI
LABORATORIO DE CHAGAS
Nº DE PACIENTES: 543

NORMALES (50 de región endémica, 7 megacolon, 3 cardiopatías no Chagas)	55	React. AC Anti M ₂	0	0%
INDETERMINADOS	80	React. AC Anti M ₂	14	17,5%
CARDIOPATIA GRAVE	157	React. AC Anti M ₂	39	24,8%
CARDIOPATIA LEVE	61	React. AC Anti M ₂	17	27,8%
MEGACOLON + MEGAESOFAGO	86	React. AC Anti M ₂	20	23,2%
CARDIOPATIA + MEGAVISERCAS	15	React. AC Anti M ₂	5	33,0%

BOLIVIA

HOSPITAL JAPONES SANTA CRUZ

DR. JUAN JUSTINIANO

SERVICIO DE CARDIOLOGIA

Nº DE PACIENTES: 89

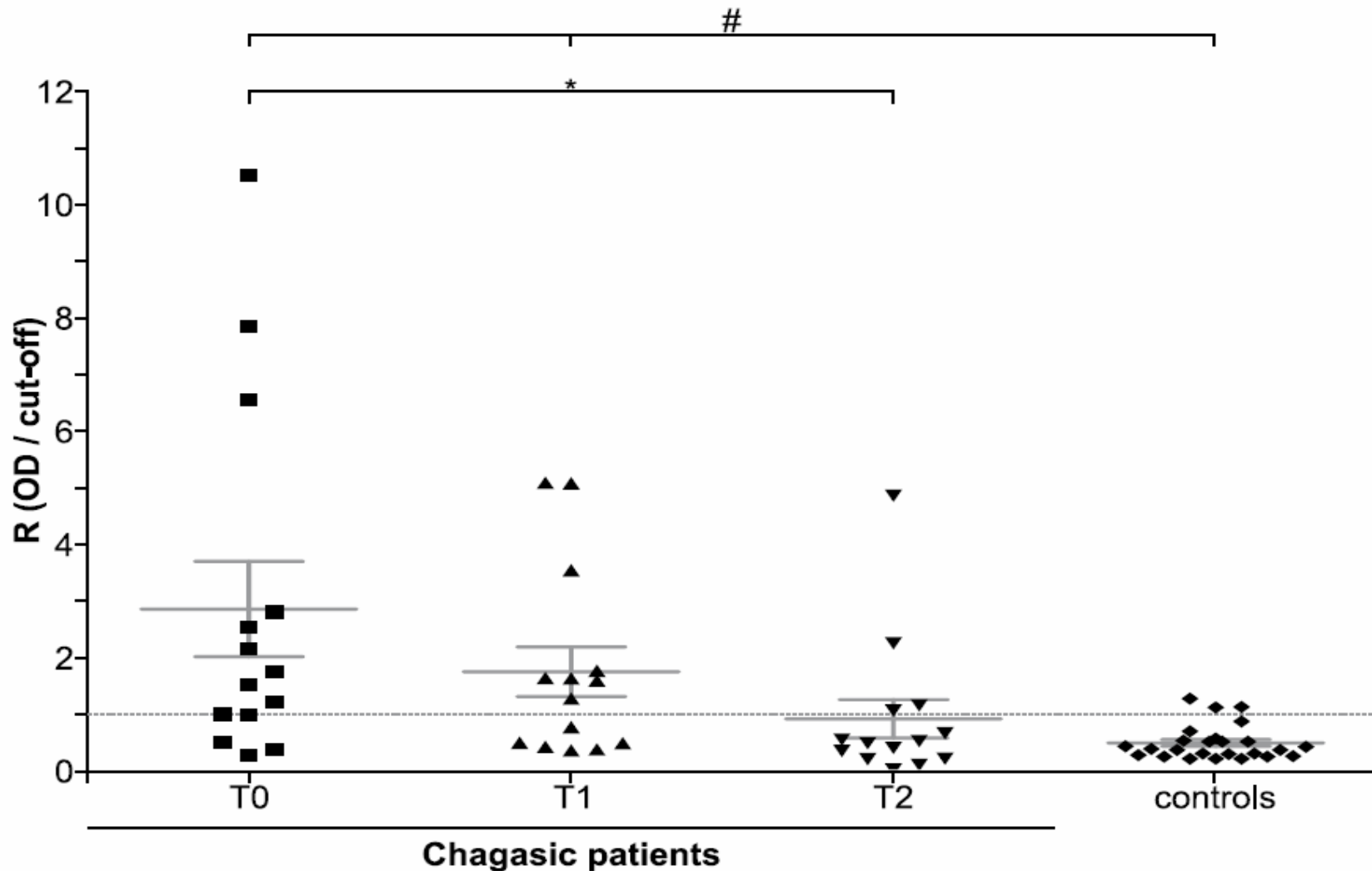
NORMALES	10	React. AC Anti M ₂	0	0%
INDETERMINADOS	50	React. AC Anti M ₂	15	30,0 %
CARDIOPATIA GRAVE	29	React. AC Anti M ₂	10	34,48%

MEXICO

INSTITUTO NACIONAL DE CARDIOLOGIA
DR. RAMON REYES
Nº DE PACIENTES: 112

CCCH	34	React. AC Anti M ₂	16	47,0%
INDETERMINADOS	10	React. AC Anti M ₂	3	30,0 %
MIOCP. D. IDIOP.	28	React. AC Anti M ₂	4	14,0%
NORMALES	10	React. AC Anti M ₂	0	0%
DADORES DE SANGRE	14	React. AC Anti M ₂	0	0%
DIABETICOS	16	React. AC Anti M ₂	0	0%

NIÑOS INFECTADOS RECIENTES EN TRATAMIENTO



J Mol Cell Cardiol 34, 1645–1654 (2002)

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Therapeutic Use of Muscarinic Acetylcholine Receptor Peptide to Prevent Mice Chagasic Cardiac Dysfunction

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