

Absence of latitudinal gradient in oligoclonal bands prevalence in Argentina

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Conflicts of interest

The authors do not have any potential financial conflict of interest relating to this poster.

Irrestrictive research grants from Biogen Argentina, Genzyme Argentina, Merck Argentina, Novartis Argentina and Roche Argentina allowed the development and implementation of the Registry (RelevarEM). Those grants did not interfere in the development plan, variables, PI selection, patient information nor other aspects of the Registry.

Introduction and objectives

Similarly, to what occurs with MS prevalence, it has been previously described that oligoclonal bands (OCB) prevalence follows a latitudinal gradient being more frequent farther away from the equator₁. Argentina has the particularity of being longitudinally extensive (21°46'S to 66°13'S). However, most studies were performed in the northern hemisphere. Previous epidemiological studies from Argentina have not found an MS prevalence latitudinal gradient₂.

The aim of the present study is to describe the prevalence of OCB in CSF in patients with MS, CIS and RIS included in the Argentinean MS and NMOSD registry (RelevarEM, NCT 03375177) and to investigate if the prevalence follows a latitudinal gradient.



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Methods

RelevarEM is a longitudinal, observational MS and NMOSD registry in Argentina. Ethics committee approval was obtained for each participating center.

For each province, an average latitude was calculated using extreme N and S latitudes obtained from Google Maps. Regarding OCB, pattern II or III were considered as positive. The frequency of OCB was calculated for each diagnostic category (MS, CIS, RIS) and for each province. Statistical analysis was carried out using SPSS v22. Logistical regression analysis was performed considering OCB as a dichotomic dependent variable and latitude as an ordinal independent variable. Also, the percentage of patients OCB positive for each province was calculated and linear regression analysis was performed considering average latitude of each province as the independent variable.



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Results

We included 2866 patients from different locations in Argentina (92.4% MS, 5.8% CIS and 1.8% RIS). The mean age at diagnosis (SD) was 32.7 (11.2), 35.2 (10.7) and 40.7 (11.2) for MS, CIS and RIS patients, respectively. Lumbar puncture was performed in 54.6%, 63.9%, and 43.4% of MS, CIS and RIS patients, respectively. OCB were positive in 75.4%, 55.7% and 60.9% of MS, CIS and RIS patients, respectively. No association was found between OCB positivity and latitude either analyzing all patient or dividing them by diagnostic categories neither using logistical regression or linear regression analysis. No association was found between OCB positivity and latitude even after excluding patients from latitudes with OCB positivity <70% (considering them as possible misdiagnosis or suboptimal testing methodology).

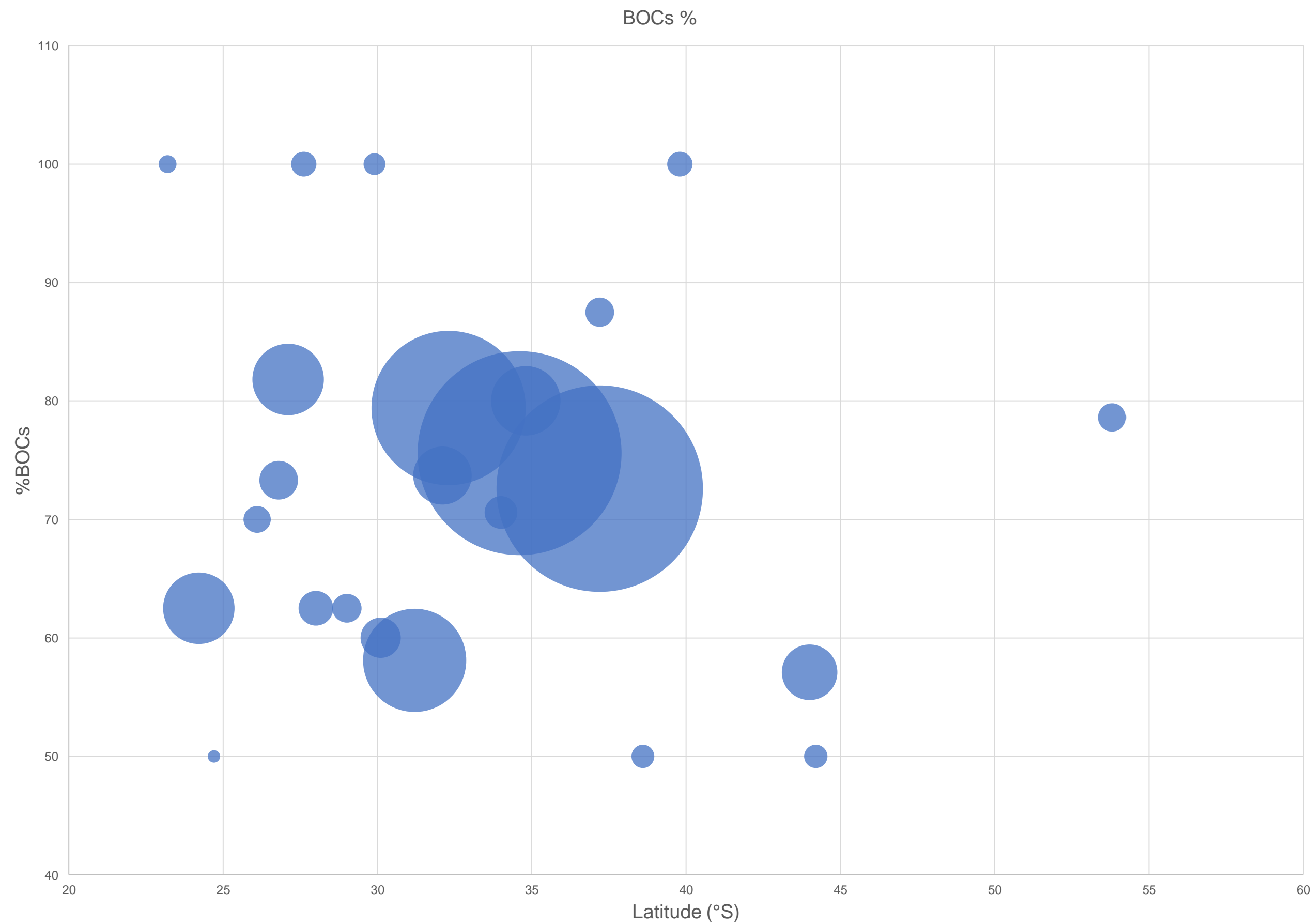
Results

Province	Latitude (°S)	N	Gender (% F)	Age at diagnosis (SD)	Diagnosis %			LP (%)	OCBs (%)
					MS	CIS	RIS		
Jujuy	23.2	6	83.3	30.7 (12.2)	66.7	33.3	0	16.7	100
Salta	24.2	96	62.5	30.2 (9.8)	89.6	9.4	1	16.7	62.5
Formosa	24.7	3	66.7	31 (10.6)	100	0	0	66.7	50
Chaco	26.1	14	42.9	31.7 (12.8)	85.7	14.3	0	71.4	70
Misiones	26.8	28	67.9	29.4 (9.5)	89.3	10.7	0	27.5	73.3
Tucuman	27.1	96	79.2	30.5 (9.9)	91.7	6.3	2.1	45.8	81.8
Catamarca	27.6	12	41.7	27.8 (12.8)	100	0	0	66.7	100
Santiago del Estero	28	23	56.5	33.5 (10.2)	100	0	0	34.8	62.5
Corrientes	29	16	62.5	34.4 (9.3)	93.8	0	6.3	50	62.5
La Rioja	29.9	9	100	37 (12)	88.9	11.1	0	77.8	100
San Juan	30.1	30	60	31.8 (12)	93.3	6.7	0	50	60
Santa Fe	31.2	201	69.2	32.6 (10.3)	93	3.5	3.5	42.8	58.1
Entre Rios	32.1	64	54.7	32 (11.1)	96.9	3.1	0	59.4	73.7
Cordoba	32.3	450	69.3	33 (10.3)	95.1	4.9	0	60.4	79.4
San Luis	34	20	75	31.7 (7.1)	85	15	0	85	70.6
CABA	34.6	781	64.7	33.8 (12)	91.3	6.3	2.4	58.3	75.6
Mendoza	34.8	91	58.2	30.9 (8.9)	92.3	6.6	1.1	27.5	80
Buenos Aires	37.2	804	63.7	33.3 (11.7)	93.3	5.3	1.4	59.8	72.6
La Pampa	37.2	16	50	31.1 (17.3)	100	0	0	50	87.5
Neuquen	38.6	10	70	38.4 (13)	80	10	10	60	50
Rio Negro	39.8	12	75	35.5 (6.1)	75	25	0	25	100
Chubut	44	58	70.7	34.3 (10.5)	77.6	6.9	15.5	48.3	57.1
Santa Cruz	44.2	10	45.5	34.4 (9.8)	90.9	0	9.1	54.5	50
Tierra del Fuego	53.8	15	73.3	28.3 (10.7)	93.3	6.7	0	93.3	78.6
TOTAL		2647	65.4	33 (11.2)	92.4	5.8	1.8	54.9	73.9

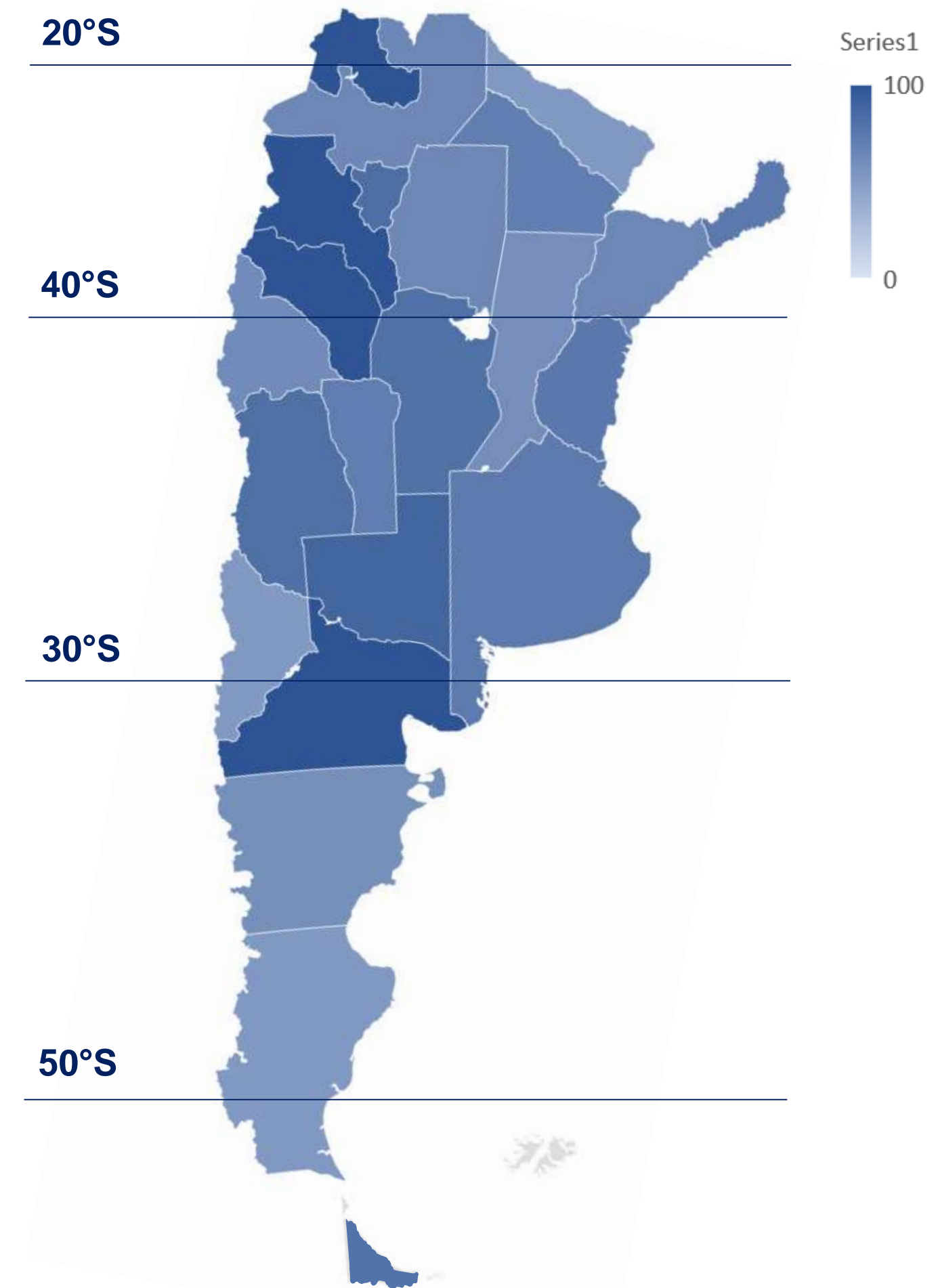
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Results



Percentage of OCB positive patients according to latitude of residence. Bubble size represents number of patients.





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Conclusions

Similarly, to what has been described regarding MS prevalence, OCB positivity does not seem to follow a latitudinal gradient in Argentina. Also, OCB positivity in our study is lower than described in previous reports from other world regions.

The main limitation of the present study is that the method by which OCB were tested was not collected. The main strengths are the large number of patients included and the inclusion of patients from all the provinces of Argentina which is a longitudinally extensive region in the southern hemisphere. Possible reasons for the low OCB positivity and lack of latitudinal gradient in our population are differential environmental/genetic factors, differences in the method used to determine OCB or misdiagnosis. Also, the effect of internal migration must be considered. However, when excluding provinces with OCB positivity lower than 70% no association was observed between latitude and OCB status suggesting that a true lack of latitudinal gradient in Argentina.