

# Prevalence and Correlates of Metabolic Syndrome in Patients with Rheumatoid Arthritis

Haye Salinas, MJ<sup>1</sup>; Bertoli, AM<sup>2</sup>; ; Caeiro, F<sup>1</sup>; L<sup>1</sup>; Lema, Bellomio, V<sup>6</sup> Agüero, S<sup>7</sup>; ; Ceccato, F<sup>10</sup> Saucedo, C<sup>4</sup>; Rosa, J<sup>4</sup>; Quintana, R<sup>5</sup>; Schmid, M<sup>10</sup> Spindler, W<sup>8</sup>; Tamborenea, N<sup>9</sup>; ; Paira, C<sup>10</sup>; Pons Estel, BA<sup>5</sup> Spindler, Soriano, ER<sup>4</sup>; Rosa, J<sup>4</sup>; A<sup>8</sup>; Alvarellos, A<sup>1</sup>; Saurit, V<sup>1</sup>.

<sup>1</sup>Hospital Privado-Córdoba, <sup>2</sup> Instituto Reumatológico Strusberg-Córdoba, <sup>3</sup> Instituto Modelo de Cardiología-Córdoba, <sup>4</sup> Hospital Italiano-Buenos Aires, <sup>5</sup> Hospital Provincial de Rosario-Santa Fé, <sup>6</sup> Hospital A.C. Padilla-Tucumán, <sup>7</sup> Centro de Rehabilitación II-Catamarca, <sup>8</sup> Centro Médico Privado de Reumatología-Buenos Aires, <sup>9</sup> OMI, <sup>10</sup> Hospital Cullen- Santa Fé. Argentina.

## Background and purpose

Patients with Rheumatoid Arthritis (RA) have increased morbidity and mortality due to cardiovascular (CV) disease. The screening of CV risk factors, metabolic syndrome (MS) among them, is therefore mandatory.

The purpose of this study is to determine and compare the frequency of MS in patients with RA and a control group, and to assess the factors associated with MS.

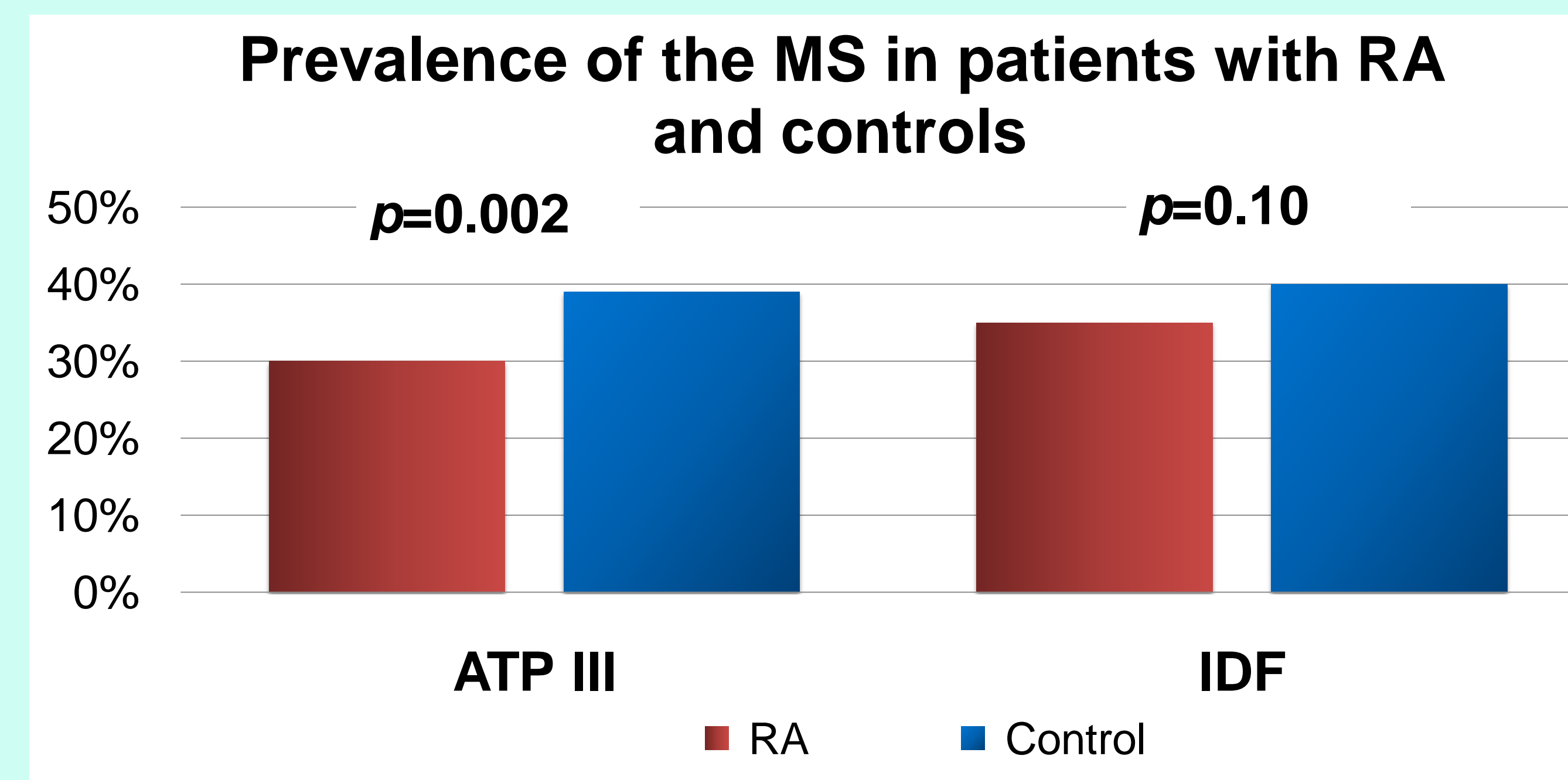
## Patients and Methods

This is a cross-sectional study involving 1033 (409 RA and 624 age and gender matched controls) patients, that are followed at nine different medical institutions in Argentina. MS was defined according to the Adult Treatment Panel III (ATPIII) and the International Diabetes Federation (IDF). The relationship between demographic (age, gender), clinical (disease duration, disease activity as per the DAS28, presence of RF and/or ACCP antibody, presence of extra-articular manifestations), pharmacological treatment variables and MS were examined by descriptive statistics (the chi-square test for categorical variables and the Mann-Whitney test for continuous variables). Variables with  $p \leq 0.10$  in these analyses were then examined by logistic regression.

Participants signed informed consent according to the declaration of Helsinki. The study was approved by local IRB's

## Results

**Grupo total: 1033**  
**RA : 409**      **Control: 624**  
**Age: 55.5 ± 13.2**      **Age: 57.3 ± 13.1**  
**Female: 83%**      **Female: 83%**



**Characteristics of patients with RA according to the presence or absence of the MS (IDF/ATP III)**

	With MS n=124	Without MS n=285	P value
Gender, female n (%)	302 (81)	559 (85)	0.10
Age, years mean (SD)	<b>60.6 (10.9)</b>	<b>54.3 (13.7)</b>	<b>&lt;0.001</b>
Smoking n (%)	52 (14)	125 (19)	0.053
Alcohol consumption n(%)	27 (7)	44 (7)	0.72
Exercise n (%)	<b>95 (25)</b>	<b>236 (35)</b>	<b>0.001</b>
Hypothyroidism n(%)	<b>107 (29)</b>	<b>123 (19)</b>	<b>&lt;0.001</b>
Disease duration in months median (IQ 0.25-0.75)	96 (36-156)	90 (48-180)	0.78
DAS28 median (IQ 0.25-0.75)	3.3 (2.6-4.1)	3.37 (2.4-4.3)	0.78
Positive RF/ACCP n (%)	114 (92)	244 (86)	0.07
ESR median (IQ 0.25-0.75)	<b>22 (13.4-34.7)</b>	<b>18 (10-32)</b>	<b>0.005</b>
CRP median (IQ 0.25-0.75)	0.44 (0.15-1.15)	0.26 (0.07-0.92)	0.06
Extra articular manifestations n (%)	44 (35)	77 (27)	0.08
BMI median (IQ 0.25-0.75)	<b>28 (26-31.6)</b>	<b>25 (22-28)</b>	<b>&lt;0.001</b>
Corticosteroids n (%)	88 (71)	189 (66)	0.35
Methotrexate n(%)	104 (82)	235 (82)	0.72
Leflunomide n(%)	26 (21)	52 (18)	0.52
Biologic n (%)	39 (31)	70 (25)	0.14
Hydroxychloroquine n (%)	<b>12 (10)</b>	<b>51 (18)</b>	<b>0.03</b>
Other DMARDs n (%)	6 (5)	6 (2)	0.13

## Results

### Logistic regression analysis of factors associated with MS

	$\beta$	ES	p	OR (CI 95%)
Age	0.03	0.009	<0.001	1.03 (1.01-1.05)
RF/ACCP +	0.86	0.39	0.02	2.37 (1.09-5.16)
Hydroxychloroquine	-0.73	0.36	0.04	0.48 (0.23-0.97)

SE: Standar error. OR: Odds Ratio. CI: Confidence Interval.

Variables introduced into the regression model: Gender, Age, ESR, Extra articular manifestations, RF/ACCP+, Hydroxychloroquine, Smoking.

## Conclusions

In this study, we were not able to demonstrate a higher frequency of MS in RA patients. However, among RA those older patients who also display features of a more severe disease such as a positive serology and extra-articular manifestations seem to be at a higher risk for the development of MS; while those on hydroxychloroquine seem to be at lower risk, probably reflecting the use of this drug in cases with a less severe disease.

### Bibliography

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