

# ASSESSMENT OF DYSAUTONOMIC SYMPTOMS IN MS PATIENTS BY MEANS OF THE COMPOSITE AUTONOMIC SYMPTOM SCORE (COMPASS)-31 QUESTIONNAIRE

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## Introduction

The autonomic nervous system might be involved in Multiple Sclerosis (MS) patients. The Composite Autonomic Symptom Score (COMPASS)-31 questionnaire explores autonomic symptoms from six domains, through 31 multiple choice questions [1].

## Materials and methods

213 consecutive patients (P group: 18-65 years old, no major comorbidity) and 97 consecutive healthy individuals (C group: 18-65 years old) completed the COMPASS-31 questionnaire. Demographic data were collected for both groups and MS history data for the P group. We compared the COMPASS scores between the two groups and among subgroups of patients sorted by disease duration, by means of the Mann-Whitney U test. Spearman's rho coefficient between Expanded Disability Status Scale (EDSS) step and COMPASS result was calculated and, finally, a multiple linear regression model including EDSS, sex and disease duration as independent variables was performed.

## Results

Mean age in the P and C groups was  $44 \pm 11$  and  $40 \pm 13$  years respectively, with a female percentage of 67.6% (P) and 56.7% (C). COMPASS score resulted significantly higher in the P than C group (median 18.1 vs 10.1, interquartile range 7.8-33.6 and 5.2-18.8 respectively;  $p < 0.001$ ) and in female than in male patients (median 19.4 vs 17.0,  $p = 0.001$ ), whereas not dissimilar between male and female controls (median 10.1 and 10.4). Among patients, COMPASS score correlated with the EDSS step ( $r = 0.33$ ,  $p < 0.001$ ), with a slightly lesser degree if adjusting for disease duration ( $r = 0.27$ ,  $p < 0.001$ ); the multiple linear regression showed a strong relationship between male sex and lower COMPASS score ( $B = -7.93$ ,  $p = 0.001$ ), a positive association between higher EDSS scores and higher questionnaire results ( $B = 2.52$ ,  $p < 0.001$ ), and no effect of disease duration ( $B = -0.01$ ,  $p = 0.96$ ).

## Objectives

To assess the burden of autonomic symptoms, stratified by sex, disability and disease duration, in MS patients from a tertiary MS centre in Italy, through the completion of the validated [2] Italian version of the COMPASS-31 questionnaire, in a case-control design.

Table 1: demographic and clinical data

	P group (n=213)	C group (n=97)
Gender (f:m)		
n	144:69	55:42
%	67,6:32,4	56,7:43,3
Age (years)	$44 \pm 11$	$40 \pm 13$
Course		
RR	160 (75,1%)	
SP	34 (16,0%)	
PP	19 (8,9%)	
Disease duration	$14 \pm 9$ years	
EDSS (median)	2.0	

## Discussion

Our research has demonstrated significantly higher COMPASS score in the P group, especially in female patients, though not to the point to discriminate patient from control in the single subject. Among disease factors, a greater disability shows some correlation with higher COMPASS results, while disease duration possibly has no effect.

## Conclusions

With some limitations, we deem that the COMPASS-31 questionnaire might represent a useful tool for a quick evaluation of dysautonomic symptoms in Italian MS patients. Formal autonomic testing is warranted in subjects with high scores.

Table 2: COMPASS scores in the P and C groups

Domain	P group		C group		p value
	median	range	median	range	
Orthostatic intolerance	8	0-40	0	0-20	0,001
Vasomotor	0,00	0-4,17	0,00	0-2,50	<0,001
Secretomotor	0,00	0-12,86	0,00	0-10,71	0,001
Gastrointestinal	5,36	0-18,75	4,46	0-11,61	0,025
Bladder	1,11	0-10	0	0-3,33	<0,001
Pupillomotor	1,67	0-5	1	0-3,33	<0,001
Total	18,12	0-86,33	10,14	0,67-39,54	<0,001

Table 3: COMPASS scores and EDSS correlation, adjusted for disease duration

Domain	corr. coefficient	p value
Orthostatic intolerance	0,202	0,003
Vasomotor	0,128	0,063
Secretomotor	0,204	0,003
Gastrointestinal	0,121	0,079
Bladder	0,379	<0,001
Pupillomotor	0,030	0,662
Total	0,269	<0,001

## References:

1. Sletten DM, et al.: COMPASS 31: a refined and abbreviated Composite Autonomic Symptom Score. Mayo Clin Proc 2012,87(12):1196-201.
2. Pierangeli G, et al. Translation and linguistic validation of the Composite Autonomic Symptom Score COMPASS 31. Neurol Sci 2015,36:1897-1902.