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POST-COVID SYNDROME AND FIBROMYALGIA, IS COGNITION WHAT THEY HAVE IN COMMON?

Mar Ariza[1,2,3], Olga Gelonch[3], Neus Cano[1,3], Bàrbara Segura[1,2,4], Jose A. Bernia[5,3], Ulises Cortes[6], Nautilus Project Collaborative Group* & Maite Garolera[3,7]

[1] Medical Psychology Unit, Department of Medicine, University of Barcelona (UB), Barcelona, Spain; [2] Institute of Neurosciences, UB; [3]Clinical Research Group for Brain, Cognition and Behavior, Consorci Sanitari de Terrassa (CST), Terrassa, Spain; [4] Institute of Biomedical Research August Pi i Sunyer (IDIBAPS), Barcelona, Spain; [5] Department of Anesthesia, Resuscitation and Pain, CST; [6]Faculty of Informatics of Barcelona (FIB), Polytechnic University of Catalonia, Barcelona, Spain; [7]Neuropsychology Unit, CST.

**Hospital Germans Trias i Pujol; Hospital Consorci Sanitari Integral; Hospital Universitari Arnau de Vilanova; Hospital Universitari de Santa Maria de Lleida; Consorci Sanitari Alt Penedès-Garraf ; Hospital Nostra Senyora de Meritxell; Fundació Sant Hospital de la Seu d'Urgell; Consorci Hospitalari de Vic; Hospital Clínic de Barcelona; Hospital de Tortosa Verge de la Cinta; Hospital Universitari de Bellvitge; Hospital Universitari Mútua de Terrassa; Hospital Municipal Badalona; Institut d'Assistència Sanitària-Girona; Hospital Sagrat Cor. Germanes Hospitalàries SCJ. Martorell; Hospital de Figueres; Hospital de Puigcerdà; Hospital General de la Cruz Roja San José y Santa Adela.*

Introduction

The prevalence of post-COVID-19 syndrome (PCS) is unclear, but it is estimated that around 10-20% of people have persistent symptoms for weeks or months after initial SARS-CoV-2 infection. Clinical features of fibromyalgia (FM) are common in patients who recovered from COVID-19. Musculoskeletal pain, a cardinal symptom of FM, is frequently reported, along with fatigue, neuropsychiatric disturbances, and executive dysfunction.

Our objective was to compare a sample of PCS patients with an FM sample on the performance of several measures of executive functioning

Methods

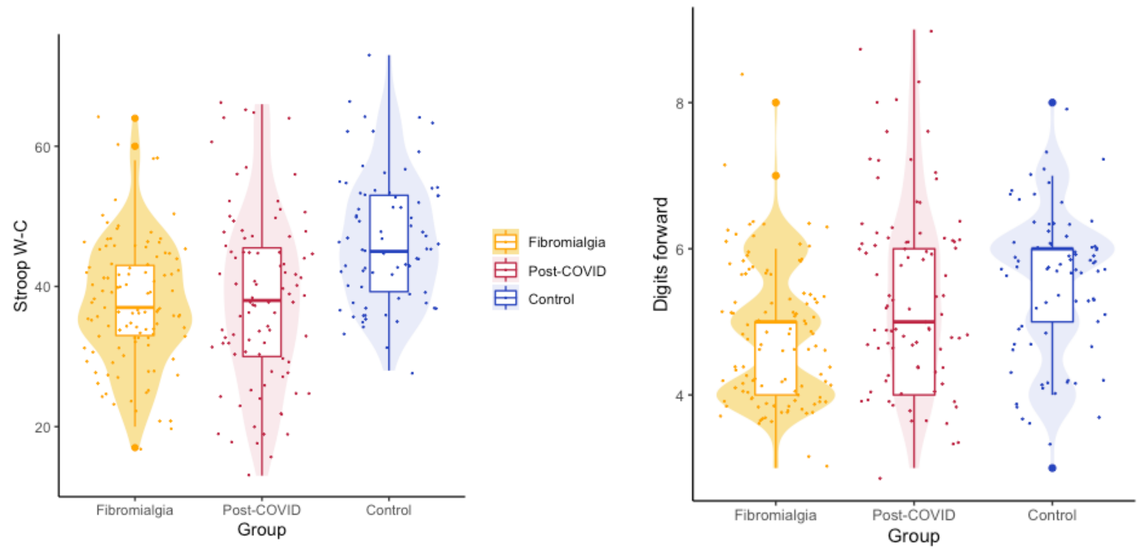
The sample consisted of 91 women with PCS (according to NICE) recruited from Neuropsychology and COVID Units from 17 Hospitals from Catalonia, Madrid, Galicia and Andorra (mean age=43.36, SD= 8.77; mean years of education= 13.80, SD= 3.04; mean days from acute disease= 318.84, SD= 126.55), 110 women diagnosed with fibromyalgia (according to of the American College of Rheumatology) recruited from the Fibromyalgia Unit of the Hospital Santa Maria of Lleida (mean age=45.37, SD= 5.56; mean years of education= 10.46 SD= 8.77), and 79 healthy control (HC) women selected from non-healthcare community settings (mean age=44.82, SD= 7.77; mean years of education= 12.56, SD= 3.56).

We measured various components of executive functions and attention: phonological fluency (spontaneous production of words beginning with the letters P, M and R within a time limit of 60 seconds for each letter), Digits span forward of the WAIS-III scale, Trail Making Test and Stroop Color and Word Test (inhibitory control task). We used the vocabulary subtest of the WAIS-III scale to measure premorbid intelligence. The alpha level was set at p=0.05. Statistical analyses were performed in IBM SPSS Statistics 27 and R.

Results

An ANCOVA was run to determine the differences between groups in cognitive variables after controlling for vocabulary and years of education. There was a statistically significant difference in means of inhibitory control task between groups, $F(2, 272) = 13.014$, $p < .001$, partial $\eta2 = .089$. Post hoc analysis was performed with a Bonferroni adjustment. The mean of the inhibitory control task in the control group was statistically significantly greater than the PCS (mean difference= 5.995; p=<.001) and the FM (mean difference= 6.832; p< .001). Moreover, the three groups were statistically significantly different in means of Digits span forward, $F(2, 271) = 8.131$, $p < .001$, partial $\eta2 = .058$. The FM group had the poorest Digits span forward, which was statistically significantly lower than Control (mean difference= -0.571; p= .007) and the PCS (mean difference= -0.82; p< .001) groups.

	FIBROMYALGIA (N=110) Mean (SD)	POST-COVID SYNDROME (N=91) Mean (SD)	CONTROL (N=79) Mean (SD)	F	p	η2	
AGE	45.37 (5.56)	43.36 (8.77)	44.82 (7.76)	1.97	.141		
EDUCATION (years)	10.46 (2.77)	13.80 (3.04)	12.56 (3.56)	53.52	<.001		
VOCABULARY	38.47 (7.82)	30.53 (9.49)	40.67 (7.79)	21.93	<.001		
	Adjusted[a] Mean (SE)	Adjusted Mean (SE)	Adjusted Mean (SE)				
DIGITS	4.85 (0.13)	5.67 (.15)	5.42 (.14)	8.32	<.001	.058	FM vs Control** FM vs PCS
PMR TOTAL	36.40 (1.12)	38.15 (1.37)	40.38 (.24)	2.94	.054		
STROOP W-C	39.29 (.96)	36.61 (1.07)	45.94 (1.09)	13.01	<.001	.089	FM vs Control** PCS vs Control**
TMT-A	35.82 (1.76)	43.48 (1.95)	33.07 (1.96)	1.36	.259		
TMT-B	97.74 (4.63)	82.17 (5.58)	86.59 (5.05)	2.27	.105		



Conclusions

Interference inhibition is a shared executive dysfunction in PCS and FM. Moreover, the FM group perform worse than the HC group on measures of auditive-verbal attention. Further analyses are needed to elucidate the mechanisms involved in these results.

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