

# GREATER ADHERENCE TO THE MEDITERRANEAN DIET PATTERN IS RELATED TO A BETTER INFLAMMATORY AND OXIDATIVE STATUS IN PATIENTS WITH METABOLIC SYNDROME

Maria Magdalena Quetglas-Llabrés<sup>1</sup>, Margalida Monserrat-Mesquida<sup>1,2</sup>, Cristina Bouzas<sup>1,2</sup>, Silvia Garcia<sup>1,2</sup>, Lucía Ugarriza<sup>1</sup>, Antoni Sureda<sup>1,2</sup> and Josep A. Tur<sup>1,2</sup>

<sup>1</sup>Research Group in Community Nutrition and Oxidative Stress, University of the Balearic Islands-IUNICS, 07122 Palma de Mallorca and Health Research Institute of Balearic Islands (IdISBa), 07120 Palma de Mallorca. <sup>2</sup> CIBER Physiopathology of Obesity and Nutrition (CIBEROBN), Institute of Health Carlos III (ISCIII), 28029 Madrid.

## **INTRODUCTION AND EXPERIMENTAL PROCEDURE**

Metabolic Syndrome (MetS) is a clustering of obesity, hypertension, dyslipidemia and insulin resistance. This pathology is directly associated with increased risk of developing diabetes and cardiovascular diseases. MetS is also characterized by an increase of oxidative stress which contributes to impaired inflammation, vascular function, and atherosclerosis [1]. Numerous studies establish that the best remedy to prevent the appearance and progression of this disease is the Mediterranean diet together with a healthy lifestyle [2-3]. The aim of the present study was to evaluate the differences in biomarkers of oxidative stress and inflammation in 90 adults between 40-60 years old with MetS based on their adherence to Mediterranean Diet Pattern (MDP).

## RESULTS

Glucose, glycated haemoglobin A1c (HbA1c), and triglyceride levels were significantly higher in patients with lower adherence to MDP with respect to the group with greater adherence. Plasma levels of interleukin-1 $\beta$  (IL-1 $\beta$ ), IL-6, IL-15, tumour necrosis factor  $\alpha$  (TNF $\alpha$ ), xanthine oxidase (XOD) and ghrelin and the activities of superoxide dismutase (SOD) and myeloperoxidase (MPO) were significantly higher in subjects

with lower adherence to the MDP. ROS production in peripheral blood mononuclear cells (PBMCs) and neutrophils stimulated with lipopolysaccharide (LPS) was significantly greater in the participants with an adherence to the MDP under the median value.

#### **GENERAL CHARACTERISTICS AND PLASMA BIOMARKERS**

	Under median value	Above median	
	(n=45)	value (n=45)	p-value
	Mean ± SEM	Mean ± SEM	
Characteristics of participants			
Age (years)	62.6 ± 0.909	$64.3 \pm 0.613$	0.163
Weight (kg)	89.3 ± 1.133	85.9 ± 1.211	0.040
Height (cm)	$164.5 \pm 0.813$	$161.2 \pm 0.760$	0.003
BMI (kg/m <sup>2</sup> )	32.9 ± 0.292	33.0 ± 0.332	0.964
Glucose (mg/dL)	122.6 ± 3.85	113.3 ± 1.87	0.034
HbA1c (%)	6.38 ± 0.121	$6.06 \pm 0.070$	0.020
Triglycerides (mg/dL)	$163.2 \pm 6.90$	137.9 ± 5.21	0.004
HDL-cholesterol (mg/dL)	43.2 ± 0.916	$45.3 \pm 0.863$	0.087
Biomarkers in plasma			
XOD (ng/mL)	$0.444 \pm 0.024$	0.336 ± 0.021	< 0.001
IL-1β (pg/mL)	10.3 ± 0.5	8.33 ± 0.38	0.035
IL-6 (pg/mL)	6.71 ± 0.71	$3.09 \pm 0.41$	0.001
IL-15 (pg/mL)	8.98 ± 0.44	$5.98 \pm 0.66$	0.012
TNFα (pg/mL)	67.8 ± 4.4	56.3 ± 2.9	0.015
Ghrelin (pg/mL)	327.2 ± 11.5	271.3 ± 8.6	0.002

#### **ROS PRODUCTION BY IMMUNE CELLS**



Under median value

Above median value



### CONCLUSION

The present study shows how people who suffer from MetS, if they have a high adherence to the Mediterranean diet, present less oxidative stress and an inflammatory state in relation to those with less adherence.

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#### REFERENCES

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