

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).

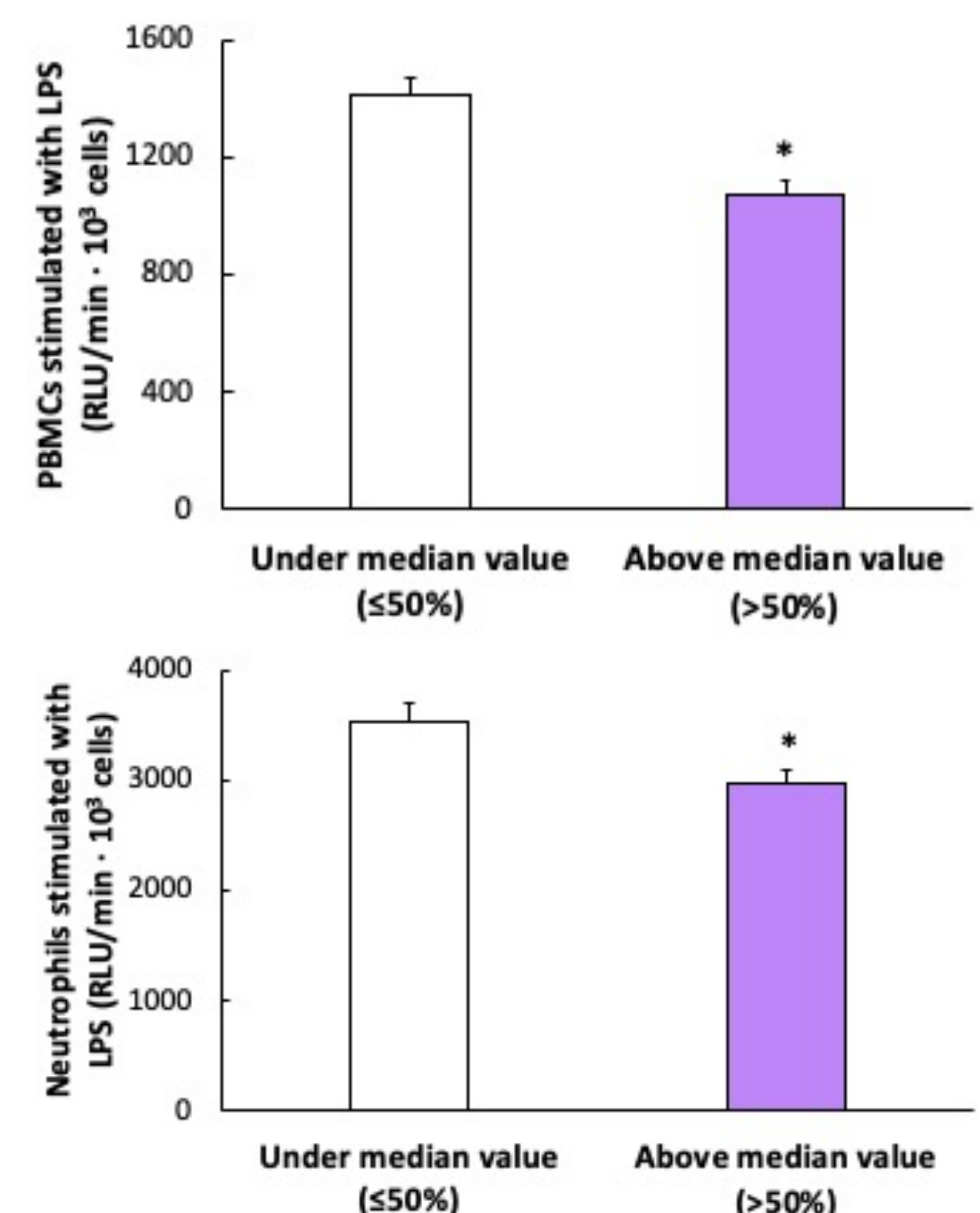
RESULTS

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 β (IL-1 β), IL-6, IL-15, tumour necrosis factor α (TNF α), 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.

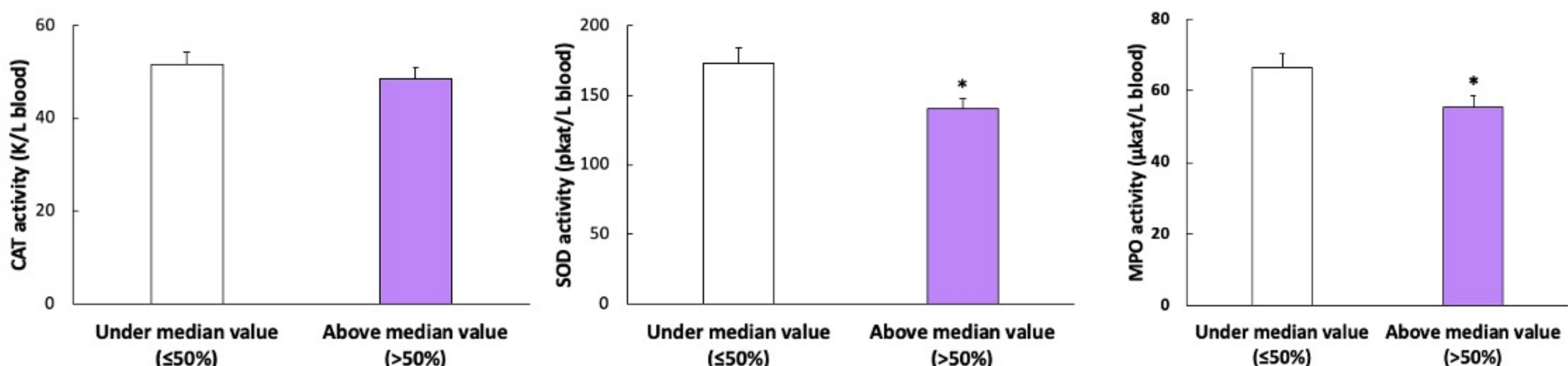
GENERAL CHARACTERISTICS AND PLASMA BIOMARKERS

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

ROS PRODUCTION BY IMMUNE CELLS



PLASMA ENZYMATIC ACTIVITIES



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.

REFERENCES

- [1] Monserrat-Mesquida, M. et al. Antioxidants. 2020 Mar 12;9(3):236. PMID: 32178436.
- [2] Bouzas, C. et al. Nutrients. 2020 Jul; 12(7): 2114. PMID: 32708828
- [3] Widmer, R.J. et al. Am. J. Med. 2015, 128, 229. PMID: 25447615.