IJAE
Vol. 123, n. 1 (Supplement): 154, 2018
ITALIAN JOURNAL OF ANATOMY AND EMBRYOLOGY

Rest-activity circadian rhythms and fat mass percentage in men with metabolic syndrome

Antonino Mulè[1], Lucia Castelli[1], Letizia Galasso[1], Eleonora Bruno[2], Patrizia Pasanisi[2], Andrea Caumo[1], Eliana Roveda[1] and Angela Montaruli[1]

[1] Università degli Studi di Milano, Dipartimento delle Scienze Biomediche per la Salute, Milano, Italia
[2] IRCCS Istituto Nazionale Tumori, Dipartimento di Medicina Preventiva e Predittiva, Milano, Italia

Metabolic syndrome is a cluster of risk conditions such as abdominal obesity, dyslipidemia, high blood pressure and high fasting glycemia. These factors generated an increase of risk of cardiovascular diseases and type 2 diabetes mellitus. Furthermore, it has been shown that there is a correlation between metabolic syndrome and disruption of circadian rhythms. The circadian rhythms produce 24-hour oscillations of several physiological variables and any irregularity of these rhythms exposes the subject to an increased risk of metabolic syndrome [1]. Aim of the study was to investigate a possible relation between the percentage of fat mass (FM%) and rest-activity circadian rhythm (RAR) in men with metabolic syndrome. We recruited 36 men with metabolic syndrome in care at Fondazione IRCCS, Istituto Nazionale Tumori. All participants underwent a continuous 7-day actigraphic monitoring (MotionWatch 8®, CamNtech, Cambridge, UK) to record the activity levels. Then participants were divided into 2 groups referring to their median FM%: group 1, with FM% <29.2 (n=19) and group 2, with FM% >29.2 (n=17). The actigraphic activity data were analyzed by single cosinor method to obtain MESOR (M), amplitude (A) and acrophase (Ø) of each subject. In addition, we applied the population mean cosinor method to evaluate the RAR parameters of each group. The results show a trend to have a reduction of MESOR and Amplitude in relation to FM%, even if we didn't find statistically significant differences (MESOR: group 1=207.5 vs group 2=194.7; Amplitude: group 1=158.4 vs group 2=145.3) between group 1 and 2 by Hotelling test.

References

[1] Shahmir et al. (2015) Irregular 24-hour activity rhythms and the metabolic syndrome in older adults. Chronobiology International 32(6): 802–813.

Key words

Metabolic syndrome, actigraphy, circadian rhythm, women, body mass index, physical activity levels.