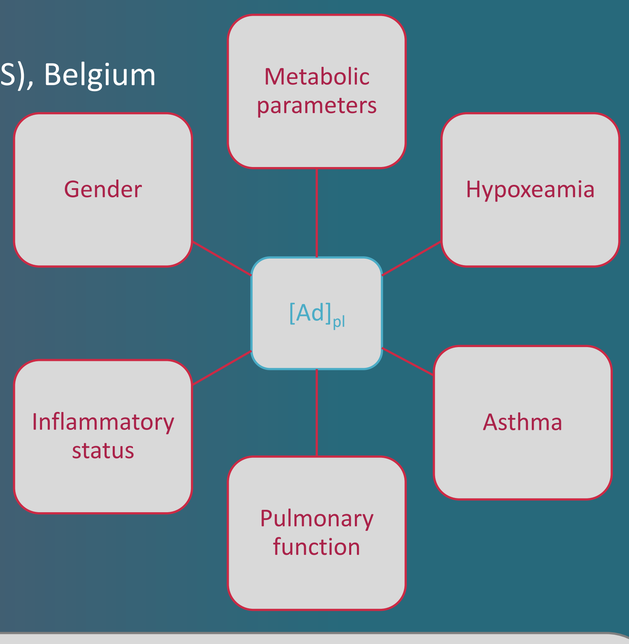
Adiponectin modulation in different COPD endotypes: a preliminary clinical study

Pierard M.[1], Tassin A.[1], Legrand A.B. [1], Legrand A. [1]

[1]Lab. Respiratory Physiology and Rehabilitation, Health Institute, University of Mons (UMONS), Belgium



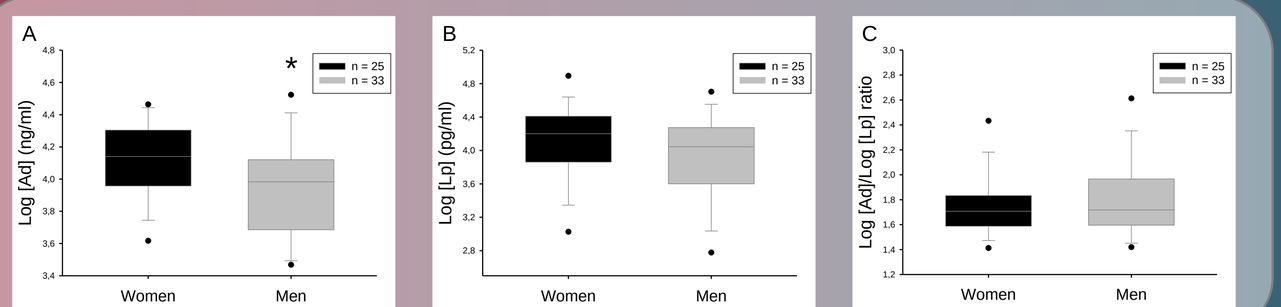
Introduction

COPD (Chronic Obstructive Pulmonary Disease) was shown to modulate Adiponectin plasmatic level (Ad_{pl}), but inconsistencies exist among studies. Different factors, such as BMI and hypoxaemia, are susceptible to modulate Ad pathway. These contrasting results among studies could be explained by the heterogeneity of the disease. We therefore investigated Ad_{pl} modulation in different endotypes of COPD patients. Potential correlations between Ad_{pl} and gender, hypoxaemia, metabolic parameters and pulmonary function were studied.

Method

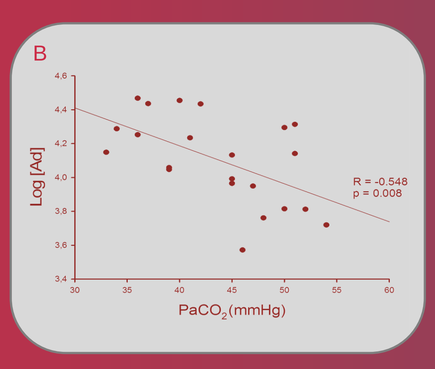
This preliminary analytical cross-sectional study was carried out on 58 COPD patients. Subjects underwent spirometry and body plethysmography in accordance with ATS/ERS guidelines. Single breath diffusing capacity for carbon monoxide (DL_{CO}) was also evaluated and arterial blood was collected. The following blood markers were evaluated: PaO_2, $PaCO_2$, adiponectin and leptin plasmatic levels as well as adiponectin/leptin ratio.

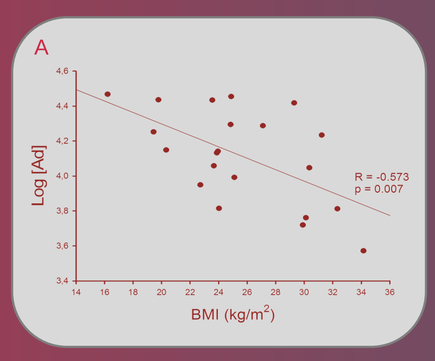
Ad_{pl} level in COPD patients is higher in women compared with men

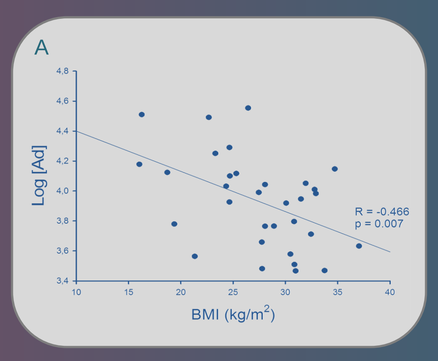


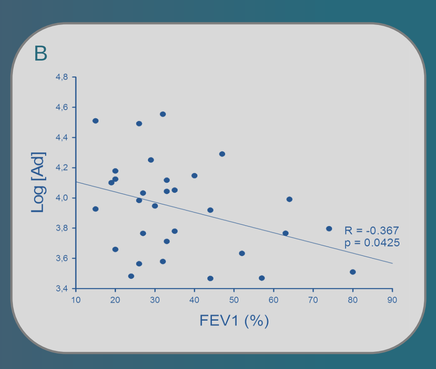
Plasma levels of Ad, Leptin (Lp) in COPD patients. (A) [Ad_{pl}] and (**B)** [Lp] were measured by Elisa and (**C)** ratio log [Ad]/ log [Lp] were calculated based on log [Ad] and log [Lp]. Differences were evaluated between groups by using a Rank Sum Test.

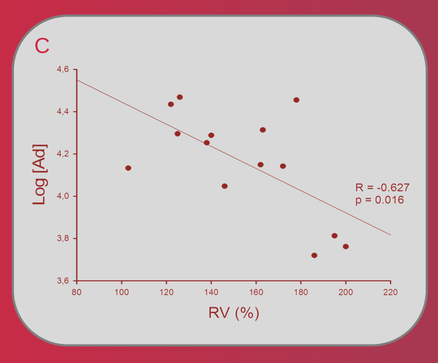
Different correlation between Ad_{pl} and clinical characteristics in women and men



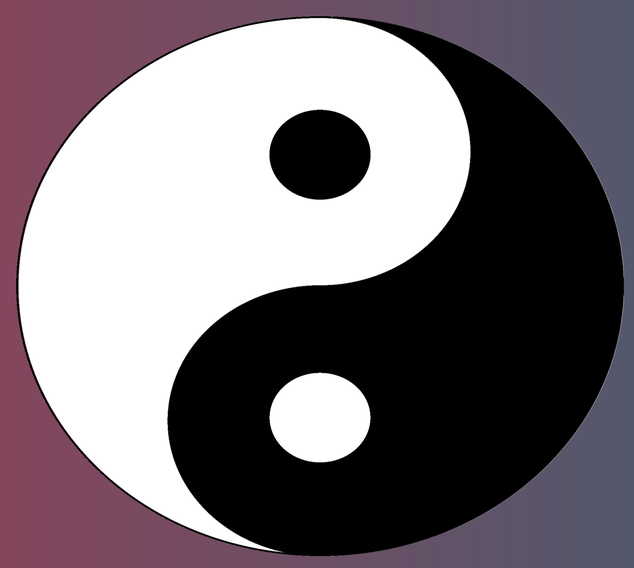




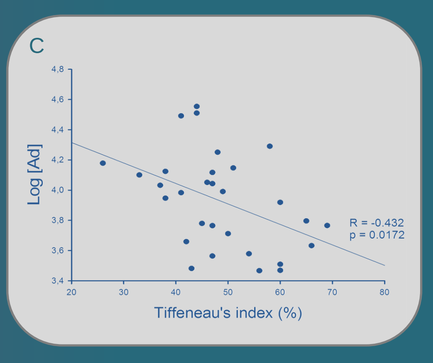


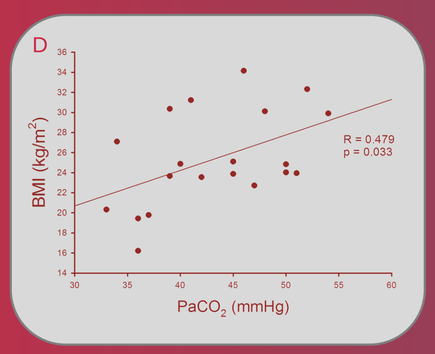


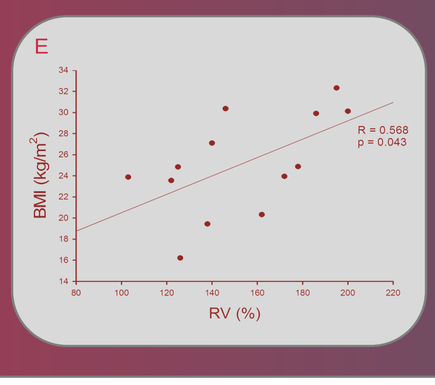
Correlation analysis between Ad_{pl} levels and (A) BMI, (B) $PaCO_2$, (C) RV (residual volume) in women COPD patients. Inter-parameter correlations were represented in (D) and (E). Pearson's correlation test was used and the correlation coefficient is presented as an *r* value.

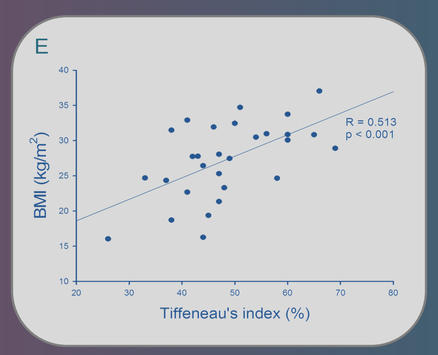


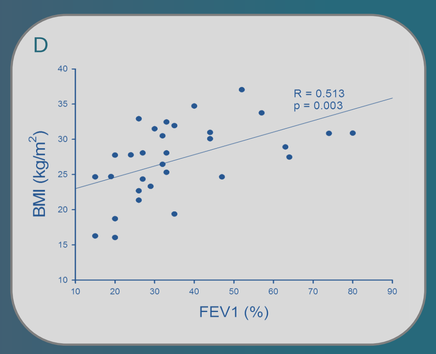
Correlation analysis between Ad_{pl} levels and (A) BMI, (B) FEV1 (Forced expiratory volume in 1 seconde), (C) Tiffeneau's index in men COPD patients. Inter-parameter correlations were represented in (D) and (E). Pearson's correlation test was used and the correlation coefficient is presented as an *r* value.











Conclusion

Ad_{pl} was negatively correlated with lung function in men and negatively correlated with obesity and hypercapnia in women, reflecting gender specificities.

Acknowledgements

We thank the FRMH (Fonds pour la Recherche Médicale dans le Hainaut) for its financial support