THE ROLE OF ADIPONECTIN/LEPTIN RATIO IN METABOLIC SYNDROME AND CARDIOVASCULAR RISK IN END STAGE RENAL DISEASE (ESRD) PATIENTS

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OBJECTIVES

Metabolic syndrome (MetS), a cluster of risk factors, and obesity increase the risk of developing cardiovascular (CV) disorders and diabetes, through mechanisms including oxidative stress, inflammation and altered adipokines' levels, such as adiponectin and leptin[1]. In the general population hypoadiponectinemia and hyperleptinemia have been linked with increased CV risk[2]. In the current study we investigated the association between the adiponectin/leptin (A/L) ratio and the risk factors comprising the MetS in ESRD patients. The relation of the A/L ratio with MetS status in conjunction with obesity, expressed as body mass index (BMI), was also explored.

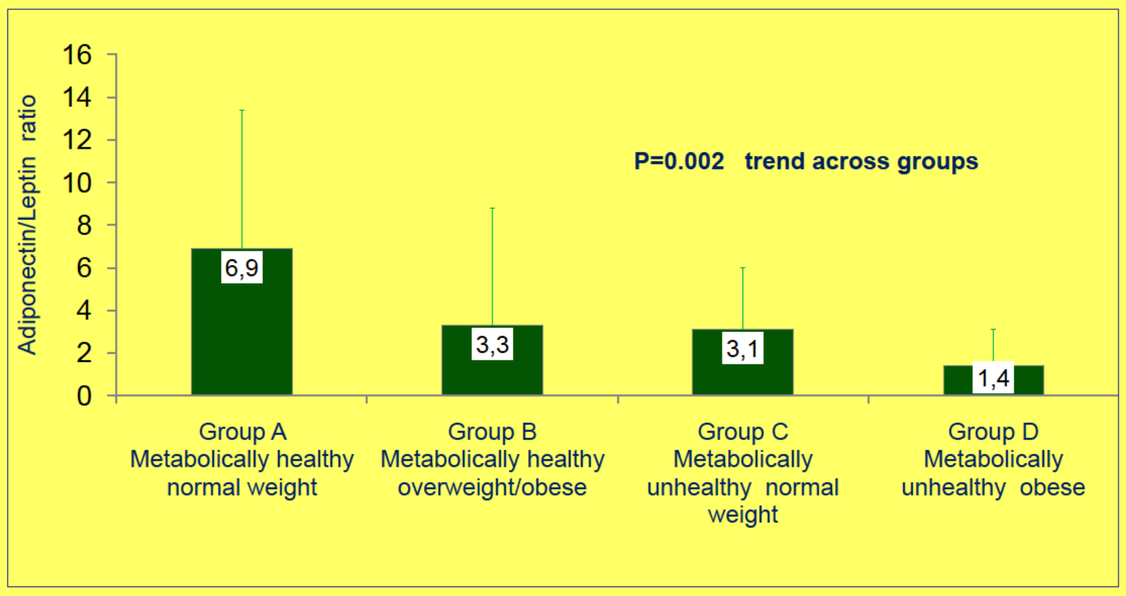
METHODS

Adiponectin and leptin levels were measured in 35 men and 30 women with ESRD aged 45-83 years (43 on hemodialysis and 22 on peritoneal dialysis with a median time on renal replacement therapy of 65.9 months) at the Nephrology Clinic of the University Hospital of Crete. The A/L ratio was calculated and evaluated across the MetS criteria (factors), as defined by the International Diabetes Federation[3]. To assess the relationship between A/L ratio and MetS status (healthy: absence of metabolic risk factors/ unhealthy: presence of metabolic risk factors) stratified by BMI categories (normal weight/ overweight/ obese), patients were divided into four groups; group A: metabolically healthy normal weight, group B: metabolically healthy overweight/obese, group C: metabolically unhealthy normal weight and group D: metabolically unhealthy obese patients.

RESULTS

The A/L ratio decreased progressively with the increase in the number of MetS factors (p=0.001). This association persisted even after adjustment for fat mass Index, sex and age (p=0.033). Additionally, an inverse correlation was determined between the adjusted A/L ratio and clusters of the plethora of MetS factors (all rho ≥ -0.350, p<0.004). The A/L ratio (Figure) was also progressively and significantly (p=0.002 for the trend) decreased through groups A and B to group C, while the lowest ratio was noticed in Group D.

Figure. A/L ratio in 65 ESRD patients according to BMI/ MetS status



CONCLUSIONS

Our results showed that the A/L ratio was strongly and independently associated with the risk of MetS across different categories of overall adiposity (BMI). Therefore, the A/L ratio may be a reliable predictor of MetS, and eventually CV disease, in ESRD patients.

REFERENCES

1. Kalaitzidis RG and Siamopoulos KC. The role of obesity in kidney disease: recent findings and potential mechanisms. Int Urol Nephrol 2011;43:771–784
2. Vega GL and Grundy SM. Metabolic Risk susceptibility in Men is partially related to Adiponectin/Leptin Ratio. J Obes 2013; doi.org/10.1155/2013/409679
3. Alberti KG, Zimmet P and Shaw J. Metabolic Syndrome - A new world-wide definition. A Consensus Statement from the International Diabetes Federation. Diabetic Medicine 2006;23:469-480

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M) Dialysis. M3) Cardiovascular complications in in CKD 5D.
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DOI: 10.3252/pso.eu.51era.2014
Poster presented at: 51 ERA-EDTA CONGRESS AMSTERDAM 2014