THE RELATION OF LIVER ENZYMES AND INSULIN RESISTANCE IN WOMEN WITH POLYCYSTIC OVARY SYNDROME (PCOS)

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Introduction

A link between polycystic ovary syndrome (PCOS) and nonalcoholic fatty liver disease (NAFLD) has been recently demonstrated. The pathogenesis of NAFLD is multifactorial, but obesity and insulin resistance (IR) appear to be important contributing factors. The aim of this study was to analyze level of transaminazes in PCOS women, and its relation to the indices of IR.

Methods

We analyzed 600 women with PCOS diagnosed using ESHRE/ASRM criteria (age 25.6 ± 5.9 years, BMI 30.6 ± 6.9 kg/m^2), and 125 body mass index (BMI)-matched healthy controls (age 31.4 ± 5.3 years, BMI 29.6 ± 6.8 kg/m^2). IR was evaluated using homeostatic model (HOMA-IR) with the cut-off of 2.5. Using cut-off, both PCOS and controls were divided into: PCOS-IR (N=384), PCOS-nonIR (N=216), Controls-IR (N=53) and Controls-nonIR (N=72). Serum liver enzymes, glucose, insulin, total testosterone and sex hormone binding globulin were determined and free androgen index (FAI) was calculated. Differences between groups were age and BMI adjusted

Results

The highest AST was found in PCOS-IR and significantly differed in comparison to PCOS-nonIR (20.75 ± 8.31 *vs.* 17.99 ± 5.04 U/L, respectively, $p<0.05$). There was no difference in AST level between Controls-IR and Controls-nonIR (18.96 ± 6.66 *vs.* 18.38 ± 5.63 U/L, respectively, $p>0.05$). ALT was highest in PCOS-IR and significantly differed from PCOS-nonIR (25.36 ± 16.21 *vs.* 18.59 ± 10.08 U/L, respectively, $p<0.05$), while ALT levels were the same in Controls-IR compared to Controls-nonIR (24.60 ± 12.97 *vs.* 19.97 ± 10.94 U/L, respectively, $p>0.05$). In PCOS HOMA-IR correlated with both AST ($\rho=0.202$, $p<0.001$) and ALT ($\rho=0.315$, $p<0.001$) while in Controls only with ALT ($\rho=0.254$, $p=0.004$)
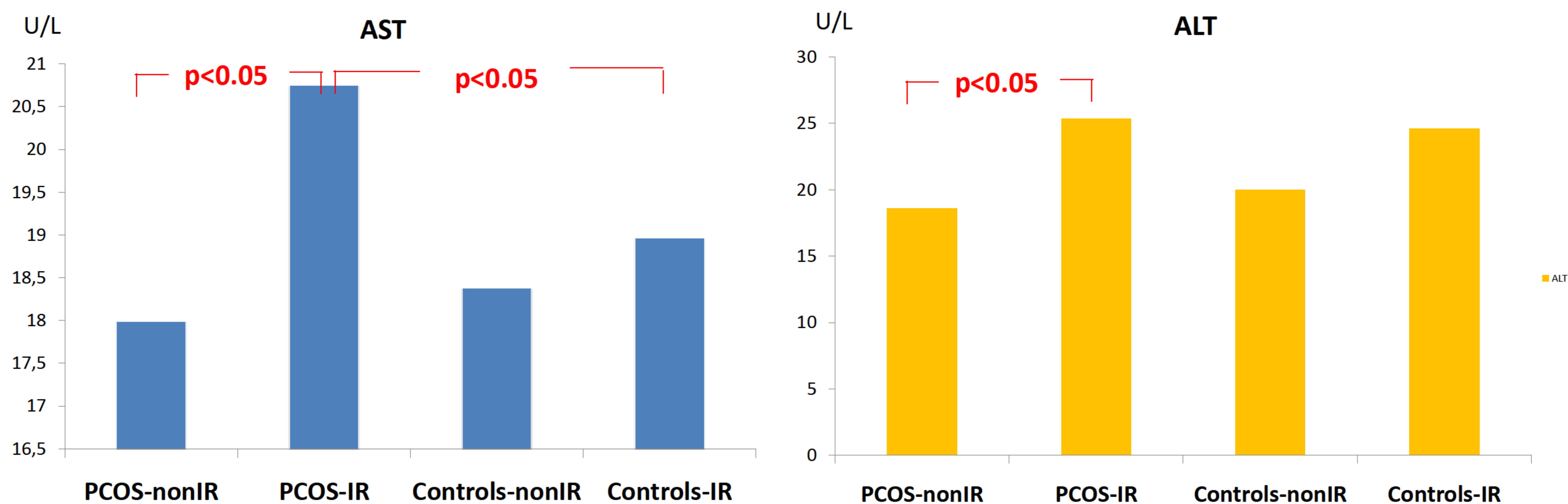
Conclusion

Although our PCOS women had normal values of liver enzymes, they were higher in comparison to controls. It seems that IR could additionally contribute to the disturbance of liver enzymes in PCOS.