

Cytokine expression in SAT and VAT from PCOS patients and control women. Possible pro-inflammatory effect of testosterone depending on BMI. A preliminary report.

Nicolás Crisosto¹, Bárbara Echiburú¹, Francisco Perez-Bravo², Cristian Flores^{1,2}, Cecilia Fuentes³, Mariana Cifuentes³, Omar Orellana⁴, Fernando Maluenda⁵, Teresa Sir-Petermann¹

(1) Laboratory of Endocrinology and Metabolism, Faculty of Medicine, West Division, University of Chile (2) Laboratory of Nutritional Genomics, Department of Nutrition, Faculty of Medicine, University of Chile. (3) Basic Nutrition and Genetic Epidemiology Laboratory Institute of Nutrition and Food Technology (INTA), University of Chile. (4) Surgery Unit, Hospital San Juan de Dios, (5) Surgery Unit, Clínica Las Condes.
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CONTEXT

Insulin Resistance is an important component of Polycystic Ovary Syndrome. Local cytokine production in adipose tissue increases local insulin resistance. The effect of testosterone on local adipose tissue cytokine production has not been explored thoroughly.

OBJECTIVE

To evaluate cytokine expression in subcutaneous adipose tissue (SAT) and visceral adipose tissue (VAT) from PCOS and control women and evaluate the response to testosterone on the later.

METHODS

We obtained serum samples and SAT by biopsy from 10 PCOS and 7 control women. In 6 different women (3 PCOS and 3 controls) subjected to abdominal surgery we obtained samples from omental VAT that were incubated (300 mg each well) for 72 hrs. in basal conditions or stimulated with 10^{-9} M or 10^{-6} M testosterone (T). Expression of cytokines (IL-1b, CCL-2, TNF- α and IL-6) in tissue samples was assessed by Real Time PCR. All women studied were 18- 40 years old.

RESULTS

Figure 1. Cytokine expression (RT PCR) in SAT and VAT from control and PCOS women

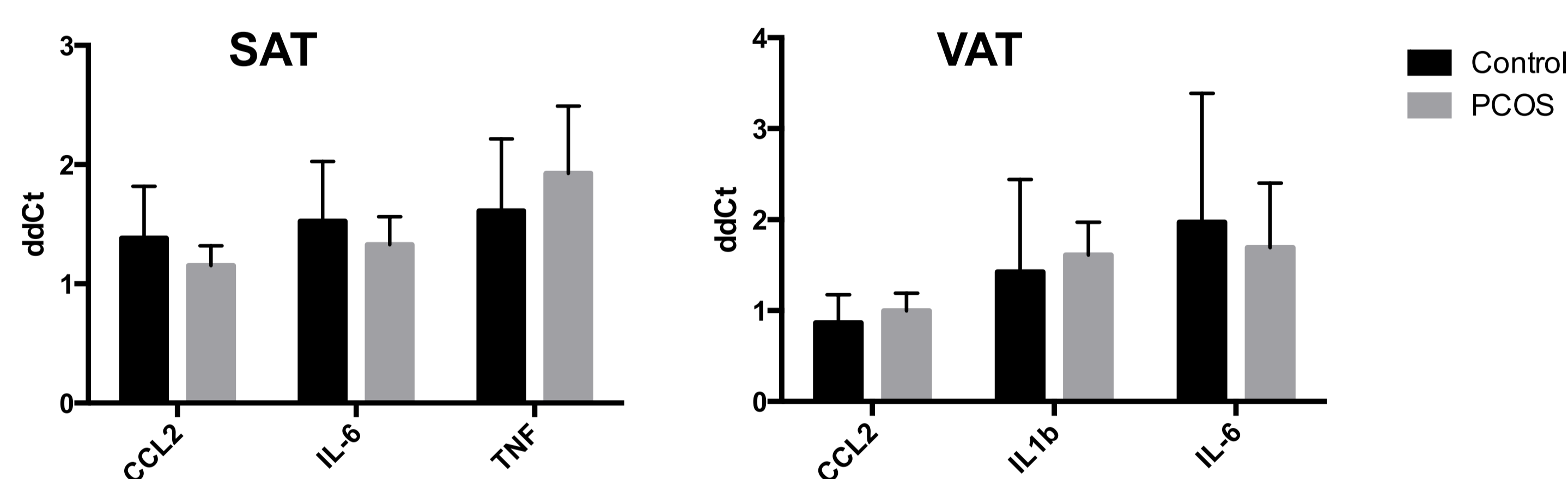
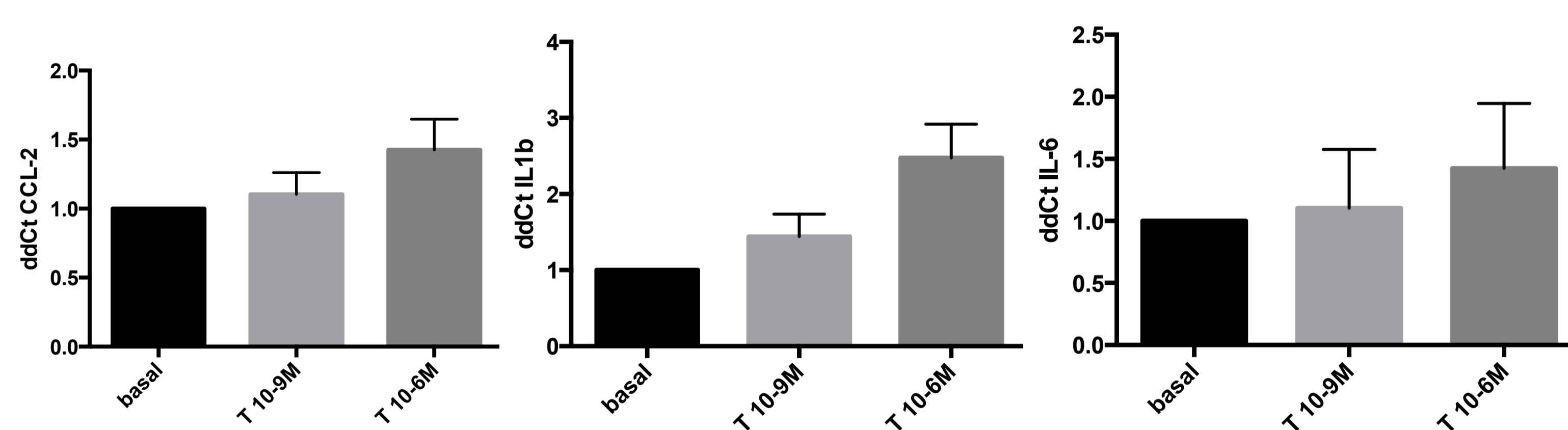
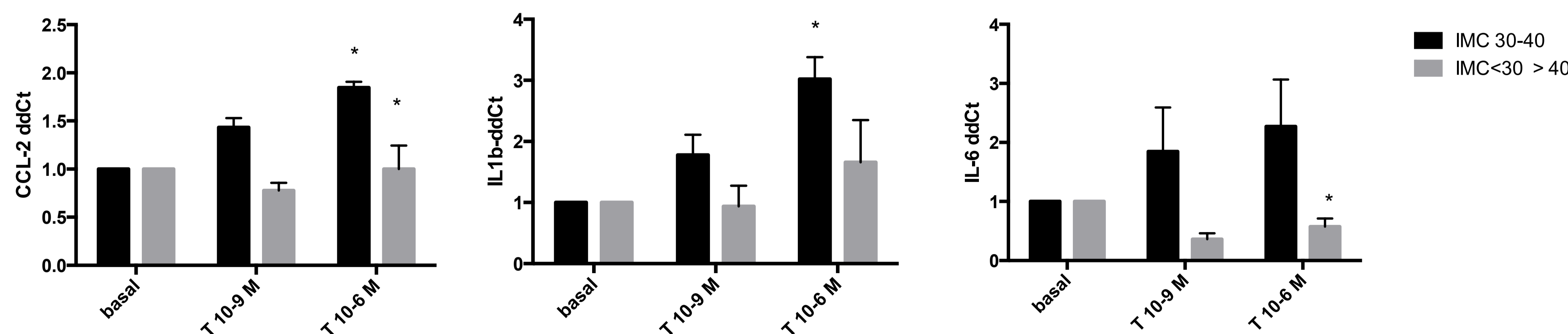


Figure 2. Cytokine expression (RT PCR) after stimulation with testosterone (T) in VAT from the total group



Basal SAT and VAT cytokine expression and serum cytokine levels showed no differences between PCOS and control patients. Regarding stimulated tissue samples, there was no significant response to T in the total group or analyzing PCOS or control patients independently. Nevertheless, in VAT samples from patients with a BMI between 30 and 40, regardless of their PCOS condition, we found a significant increase in the expression of CCL-2 [ddCt: 1,83 (1.75-1.96 ; p =0.0036], IL1b [ddCt :2.84 (2.52-3.7; p =0.0036] when stimulated with testosterone 10^{-6} M.

Figure 3. Cytokine expression (RT PCR) after stimulation with testosterone (T) in VAT from women classified according to BMI



Data are Mean \pm SEM.
*p<0.05 compared to basal.

CONCLUSIONS

SAT and VAT shows no significant differences in terms of basal cytokine expression between PCOS patients and control women. Nevertheless, in the subgroup of women with a BMI between 30 and 40, testosterone seems to have a pro-inflammatory effect in VAT. Thus, the effects of testosterone in terms of cytokine expression might be influenced by the presence of obesity.

