

ΝΙΚΟΛΑΟΣ ΝΙΚΟΛΑΟΥ

“Μελέτη της επίδρασης των ανδρογόνων στο μεταβολισμό των λιποκυττάρων”
“Impact of androgens on lipid metabolism”

Abstract

Non-alcoholic fatty liver disease (NAFLD) has been associated with androgen deficiency, yet in the majority of patients with NASH, androgens levels are normal. By contrast, it has been reported that obese PCOS women with androgen excess have evidence of increased liver fat. Our hypothesis is that androgen exposure to the liver may be crucial in the amount of lipid that can accumulate in hepatocytes. In addition, we believe that the expression of enzymes that metabolise androgens within the liver has the potential to offer a novel therapeutic target. C3A human hepatoma cell line was used as a liver model for gene expression and *de novo* lipogenesis after treatment with testosterone and DHT. Furthermore, C3A cells were transfected with AR in order to develop a model of androgen excess. FASN, ACC1, ACC2 and CPT1 mRNA expression was significantly increased after dose dependent treatment with testosterone and DHT. Similarly, mRNA expression showed significant difference after transfection with AR. In addition, we have confirmed that both testosterone and DHT increase *de novo* lipogenesis in a non-genomic way; moreover, AR also increases fat accumulation within the liver. Further comparison between DHT and testosterone activity has demonstrated a difference on gene mRNA expression. These data highlight the importance of androgens, and AR, as a key mechanism in hepatic lipid metabolism, suggesting their crucial role in lipid accumulation. Last, but not least, they show the potential role of 5 α R in the control of metabolic phenotype.