

DIFFERENTIAL EXPRESSION OF PROTEINS IN OMENTAL AND SUBCUTANEOUS ADIPOSE TISSUE RELATED TO SEXUAL STEROIDS CONCENTRATIONS

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Polycystic Ovary Syndrome (PCOS), the most common endocrine and metabolic disorder in reproductive-age women, is characterized by the association of hyperandrogenism with chronic ovulatory dysfunction in premenopausal women. Mounting evidence indicates that androgen excess is a major contributor to the predominantly visceral disposition of body fat found in these women. The identification at tissue level of new proteins involved in the pathogenesis of PCOS is of great interest for the development of more precise diagnostic techniques and for the identification of new therapeutic targets.

The main objective of the current study is to identify the impact of sex steroids in the protein content of omental and subcutaneous adipose tissue, by applying 2D-DIGE. Subcutaneous and omental adipose tissue was obtained from 21 morbidly obese patients, including 7 non-hyperandrogenic women, 7 women with PCOS and 7 men. We analyzed the data with Decyder and SPSS softwares.

This technology allowed the analysis of approximately 2600 protein spots in the comparative study. 66 spots were identified as having statistically significant differential abundance between groups and/or tissue types. We found 48 proteins with different abundance between tissue types, 6 proteins with different abundance between groups and 12 protein spots that show an interaction between both factors; groups and tissue type. Protein spots showing significant differences were identified by MALDI-TOF/TOF. With this study we have confirmed earlier candidates and identified more differences between both tissues in non-hyperandrogenic women, PCOS patients and men.

Sex steroids balance might determine abdominal adiposity and differences in omental and subcutaneous adipose tissue. The identification of differential proteins provides some insight into the molecular events occurring in subcutaneous and omental adipose tissue associated with these sexual steroid concentrations. Further characterization and validation of these differences is necessary to evaluate the possible involvement of subcutaneous and omental adiposity in the development of PCOS.