Endocrinología, Diabetes y Nutrición

210 - MOLECULAR DIAGNOSIS OF POLYCYSTIC OVARY SYNDROME IN OBESE AND NON-OBESE WOMEN BY TARGETED PLASMA MIRNA PROFILING (PÓSTER SELECCIONADO)

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Resumen

Introduction: Polycystic ovary syndrome (PCOS), the most common endocrinopathy of women at reproductive age, is characterized by a heterogeneous clinical presentation, often confounded by concurrent conditions (obesity, insulin resistance, etc.). MicroRNA have recently emerged as putative pathophysiological and diagnostic factors in PCOS. However, their contribution to metabolic complications of the disease remains unsolved and no reliable method for molecular diagnosis of PCOS based on miRNA has been reported so far. Our group has developed a novel method for accurate molecular diagnosis of PCOS, in obese and non-obese women, by applying targeted miRNA profiling of plasma samples.

Methods: miRNA analyses using NanoString and targeted qPCR validation, were applied in blood samples from a case-control PCOS cohort including 170 women classified into four groups: non-PCOS/lean; non-PCOS/obese; PCOS/lean; PCOS/obese. Statistics were applied to build classification algorithms.

Results: The geometric mean of circulating hsa-miR-103a-3p, hsa-miR-125a-5p and hsa-miR-1976, selected among 125 unchanged miRNA, was defined as optimal reference for internal normalization. Ten miRNA were identified and validated as differentially expressed across the groups. Multinomial LASSO Regression and decision-tree models were built to discriminate PCOS *vs.* non-PCOS in non-obese women, with the performer miRNA being hsa-miR-191-5p, hsa-miR-93a-5p, hsa-miR-126-3p, hsa-miR-28-3p and hsa-miR-142-3p. A similar approach was used to discriminate PCOS *vs.* non-PCOS in obese women, with hsa-miR-93a-5p, hsa-miR-28-3p, hsa-miR-143-3p and hsa-miR-539-5p being selected as performer miRNA.

Conclusions: We define herein a robust method for molecular detection and classification of PCOS, based on the unbiased identification of miRNA biomarkers and decision-tree protocols. This method allows not only the reliable diagnosis of lean women with PCOS, but also the discrimination between PCOS and obesity.