

Polycystic Ovarian Syndrome Conference

November 16-18, 2015 Seattle, USA

Alternative splicing of the androgen receptor in PCOS with ovulatory dysfunction

Hefeng Huang

Shanghai Jiao Tong University School of Medicine, China

Androgen receptor is essential for healthy developing follicle, while excess intra-ovarian androgens impair follicle growth. Hyperandrogenism is main characteristic of polycystic ovary syndrome (PCOS), a highly prevalent endocrine disorder and major threat to women's health. However, the etiology of hyperandrogenism is poorly understood. We describe the specific transcription of two AR splice variants, insertion (ins) and deletion (del) isoforms, in granulosa cells (GCs) of women with PCOS. Wild-type (wt) AR existed in each individual; surprisingly its transcription is comparable between PCOS and control group. Women with AR ins or del isoforms showed distinct hyperandrogenism, attenuated androgen metabolism, enhanced androgen synthesis and altered expression corresponding enzymes, aromatase and steroid 17α -hydroxylase, in GCs, particularly the former. *In vitro* over-expression of different AR variants in primarily cultured human GCs not only confirmed the in vivo results, but also revealed notable change of expression of folliculogenesis, steroidogenesis and ovarian structure modeling-related genes. Its underlying mechanism is inferior ability of nuclear shuttle and DNA binding, including U1 androgen response element (ARE) of CYP19A1 gene, of AR as nuclear receptor. In conclusion, alternative splicing of AR in GCs is a cause of hyperandrogenism, leading to follicular arrest in PCOS.

huanghefg@hotmail.com

Association of gut microbiome with the polycystic ovary syndrome

Izhar Ben Shlomo and Omry Koren Bar Ilan University, Israel

The relation of excess body weight to woman's infertility was described as early as 700 years ago. In the modern era Stein & Leventhal described it along with the surgical solution for infertility. The next phase of things was the realization of the role of metabolic factors in the pathogenesis of PCOS, led by the seminal observation on the role of insulin in boosting ovarian androgen production. Current research is on the genetic/genomic level, which attempts to find the culprit to the syndrome in the form of subtle changes in key genes. Throughout all these phases diet remained a first step solution to many cases, although it's favorable effect even for lean patients has been revealed only by recent studies. With the recent surge of knowledge on the role of gut microbiome in various human disease states, it was tempting to speculate that it might play a role in the pathogenesis of PCOS. We collect stool samples from PCOS patients of all BMI categories and document their hormonal and clinical profiles. For comparison we obtain stool samples from normal ovulatory women of matched ages and BMI levels and to those of the same PCOS patients after two months of carbohydrate-poor diet. Preliminary results indicate a significant difference between gut microbiome of normal ovulatory women as compared to PCOS patients. Two months of diet served to bring the patient's microbiome closer to normal. We believe that the composition of gut microbial population plays a central role in the pathogenesis of PCOS.

ibenshlomo@poria.health.gov.il

Notes: