Study on the influence of adiponectin genetic variants and adiponectin levels among Indonesian women with polycystic ovary syndrome

Pangaribuan, Bertha, author

Abstrak

Latar belakang: Resistensi insulin dan obesitas sentral adalah keadaan yang sering ditemukan pada wanita PCOS dan ditandai dengan abnormalitas penanda biologi yang terkait dengan terjadinya gangguan metabolik. Hubungan antara adiponektin dan resistensi insulin telah banyak diteliti, namun penelitian terhadap pasien PCOS baru sedikit yang dilakukan. Penelitian ini bertujuan untuk menentukan kemungkinan hubungan polimorfisme T45G dengan penanda biologi PCOS dan pengaruhnya terhadap adiponektin serum pada populasi Indonesia.

Metode: Lima puluh dua pasien PCOS dan 52 subjek ovulasi normal tanpa hiperandrogenisme sebagai kontrol disertakan dalam penelitian ini. Sampel darah dikumpulkan antara hari ke 3 dan 5 siklus menstruasi spontan, jam 7 hingga 9 pagi, setelah menjalani puasa. Dilakukan pengukuran kadar serum FSH, LH, testosteron, SHBG, glukosa, insulin, profil lipid dan adiponektin. Resistensi insulin ditentukan dengan HOMA-IR, HOMA-β, dan SHBG. DNA genom dari darah perifer pasien dan subjek kontrol digunakan untuk memeriksa polimorfisme T45G menggunakan metode PCR.

Hasil: Terdapat perbedaan yang signifikan antara kelompok PCOS dan kontrol terhadap IMT, LH, testosteron, SHBG, dan FAI, tetapi tidak signifikan terhadap frekuensi distribusi polimorfisme gen T45G. Kadar adiponektin ditemukan lebih rendah pada kelompok PCOS daripada kontrol, dan terdapat hubungan antara resistensi insulin dengan PCOS. Pada pasien PCOS frekuensi polimorfisme T45G ditemukan lebih tinggi pada wanita dengan adiponektin kadar rendah dari pada kelompok adiponektin kadar tinggi, meskipun tidak bermakna secara statistik. Tidak ditemukan hubungan antara penanda biologi PCOS (LH, testosteron, SHBG, dan FAI) dengan polimorfisme gen T45G.

Kesimpulan: Polimorfisme gen adiponektin (T45G) tidak berhubungan langsung dengan penanda biologi PCOS, namun demikian hubungannya dengan adiponektin perlu penelitian lebih lanjut.
<hr><i>Background: Insulin resistance and central adiposity are frequent disorders in PCOS women, which are marked by biological marker dysregulation related to this metabolic abnormalities. Association between adiponectin and insulin resistance has been investigated in many studies, while only a few studies were done in PCOS patients. This study is to determine the association of T45G polymorphisms in Indonesian population with PCOS biological markers and their influence to adiponectin serum.

Methods: Fifty-two PCOS patients and 52 normal ovulatory women without hyperandrogenism as control subjects were included. Blood samples were collected between day 3 and 5 of a spontaneous menstrual cycle at 7 to 9 am, after overnight fasting. Serum levels of FSH, LH, testosterone, SHBG, glucose, insulin, lipid profile and adiponectin were measured. Insulin resistance was estimated by HOMA-IR, HOMA-β,

and SHBG. T45G gene polymorphisms were determined by PCR after genomic DNA was obtained from peripheral blood of patients and control subjects.

Results: There were significant difference between PCOS and control group in term of BMI, LH, testosterone, SHBG, and FAI, but not significant to T45G gene polymorphisms frequency distribution. Adiponectin levels were lower in PCOS patients than control. There was an association between insulin resistance with PCOS. Among PCOS patients, no association between adiponectin LH, testosterone, SHBG, and FAI with T45G gene polymorphisms. T45G gene polymorphisms were more frequent in PCOS with low adiponectin levels compared to those with high adiponectin levels, although not significant statistically.

Conclusion: T45G gene polymorphisms has no direct association with PCOS biological markers, but its association with adiponectin needs further study.</i>