Ekspresi growth differentiation factor-9 (GDF-9) pada sel granulosa pasien fertilisasi in vitro: perbandingan kasus endometriosis dan non-endometriosis = Expressions of growth differentiation factor-9 (GDF-9) on granulosa cells of ivf patients: comparison between endometriosis and non-endometriosis cases

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Abstrak

Latar Belakang: Salah satu hipotesis yang menjelaskan hubungan endometriosis dengan infertilitas adalah endometriosis diyakini menyebabkan gangguan fisiologi ovarium, salah satunya dengan mempengaruhi folikulogenesis yang menyebabkan penurunan kualitas oosit. Oosit memainkan peran penting dalam mengatur dan mendukung pertumbuhan folikel, melalui produksi faktor pertumbuhan oosit. Beberapa faktor pertumbuhan telah diidentifikasi pada oosit manusia, termasuk growth differentiation factor-9 GDF-9 . Namun, sampai saat ini penelitian mengenai ekspresi GDF-9 pada sel granulosa pada wanita infertil dengan endometriosis masih belum banyak dilakukan.
Tujuan: Untuk mengetahui ekspresi mRNA GDF-9 pada sel granulosa pasien endometriosis yang menjalani FIV dan untuk mencari adanya korelasi antara ekspresi GDF-9 dengan kualitas oosit.
Metode: Penelitian potong lintang ini dilakukan di Klinik IVF Yasmin RSCM dan Klinik Sander B di Jakarta pada bulan Juli 2014 - Juli 2017. Sebanyak 50 sampel terdiri atas 25 wanita dengan endometriosis dan 25 kontrol. Sampel sel granulosa dikumpulkan pada saat petik oosit. Ekspresi mRNA GDF-9 dinilai menggunakan real time PCR.
Hasil: Terdapat penurunan jumlah ambilan oosit, jumlah oosit matur dan skor morfologi oosit pada kelompok pasien dengan endometriosis dan bermakna secara statistik. Ekspresi GDF-9 secara kuantitatif lebih rendah pada kelompok endometriosis dibandingkan dengan kontrol 5.05 0.00002 ndash; 3523 ng/ l vs 81.93 1,47 ndash; 32450 ng/ l; p=0,01 . Pada penelitian ini tidak didapatkan korelasi antara ekspresi GDF-9 dan kualitas oosit dari skor morfologi oosit dan laju fertilisasi.
Kesimpulan: Ekspresi GDF9 lebih rendah pada kelompok endometriosis dibandingkan kelompok kontrol. Namun, kami tidak menemukan korelasi antara ekspresi GDF-9 dengan kualitas oosit. Dibutuhkan studi dengan besar sampel yang lebih besar untuk mengkonfirmasi apakah perubahan ekspresi GDF-9 memiliki korelasi dengan kualitas oosit serta untuk membuktikan apakah GDF-9 dapat digunakan sebagai penanda molekuler baru untuk memprediksi kompetensi perkembangan oosit.
<hr><i>Background: One of the hypothesis that explains the association between endometriosis and infertility is that endometriosis is believed to cause ovarian physiology disturbances, one of them by affecting folliculogenesis that cause decreased oocyte quality. The oocyte plays an important role in regulating and promoting follicle growth, by the production of oocyte growth factors. Several growth factors have been identified in human oocytes, including growth differentiation factor-9 GDF-9. However the studies on GDF-9 expression in granulosa cells of infertile women with endometriosis are sparse.
Objective: To investigate the expression of GDF-9 mRNA in granulosa cells of endometriosis patients undergoing IVF and to find the correlation between GDF-9 expression and oocyte quality.
Method: This cross sectional study was done at Yasmin IVF Clinic and dr. Sander B Clinic Jakarta in July

2014 - July 2017. A total fifty samples of 25 womens with endometriosis and 25 controls were included. We collect the granulosa cells sample at the time of oocyte retrieval. GDF-9 mRNA expression were investigated by Real-Time PCR.
Result: The number of oocytes retrieved, mature oocytes and the oocyte morphology score were lower in the group of patients with endometriosis and this was statistically significant. GDF-9 mRNA expression levels was quantitatively lower in endometriosis groups compared to control 5.05 0.00002 ndash; 3523 ng/ l vs 81.93 1,47 ndash; 32450 ng/ l; p=0,01. However, we did not find any correlation between GDF-9 expression levels and oocyte quality from oocyte morphology score and fertilization rate.
Conclusion: GDF9 mRNA level was lower in endometriosis group compared to control group. However, we did not find correlation between individual GDF-9 level and oocyte quality. Large-sample studies were needed to confirm whether the expression of GDF-9 had a correlation with oocyte quality as well as to prove whether GDF-9 could be used as a new molecular marker to predict the oocyte developmental competence.</i>