Progesteron sebagai penentu jendela implantasi berdasarkan penilaian petanda reseptivitas endometrium (HOXA10, integrin aVB3 dan Pinopod) macaca nemestrina pasca pemberian hiperstimulasi ovarium terkendali = Progesterone as determinant of window implantation based on evaluated marker of receptivity of macaca nemestrina endometrium after controlled ovrian hyperstimulation

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Abstrak

ABSTRAK
Latar belakang. Prosedur stimulasi ovarium terkendali pada program FIV berdampak buruk terhadap reseptivitas endometrium. Efek buruk tersebut terjadi karena perubahan kadar hormon yang tidak fisiologis. Laporan penelitian menunjukkan bahwa keberhasilan hamil pada program FIV hanya sekitar 30%.

Tujuan penelitian. Menilai dampak pemberian stimulator ovarium terhadap ekspresi petanda reseptivitas endometrium periode implantasi.

Metodologi penelitian. Sebanyak 16 ekor Macaca nemestrina dibagi menjadi 4 kelompok: 1 kelompok kontrol dan 3 kelompok perlakuan, berupa pemberian stimulator ovarium dosis 30-70 IU selama 10-12 hari sampai diperoleh puncak sekresi estradiol pada fase folikuler akhir dan dilanjutkan dengan pemberian hCG dosis 3200 IU. Nekropsi jaringan uterus dilakukan hari ke 8-9 setelah puncak sekresi estradiol. Parameter yang dinilai adalah kadar hormon estradiol, progesteron dan ekspresi protein HOXA10, integrin αvβ3 pinopod endometrium dan hubungan hormon steroid dengan ekspresi petanda reseptivitas endometrium.

Hasil dan pembahasan. Berdasarkan uji Anova, variasi dosis stimulator ovarium antara 30-70 IU tidak menunjukkan perbedaan bermakna kadar estradiol, progesteron serta ekspresi protein HOXA10 dan integrin αvβ3 antara kelompok kontrol dengan perlakuan (p > 0,05). Berdasarkan Uji korelasi Pearson terdapat hubungan bermakna antara kadar progesteron dengan ekspresi protein HOXA10 dan integrin αvβ3 terutama pada daerah fungsional endometrium (p < 0,05), sedangkan dengan hormon estradiol tidak terdapat perbedaan yang bermakna (P>0.05). Perkembangan pinopod yang menunjukkan periode jendela implantasi (tahap perkembangan maksimal) diperoleh pada rasio progesteron/estrogen antara 0,20 ? 0,49 dan periode regresi yaitu pada rasio 0,26 ? 7,34.

Kesimpulan.Variasi dosis stimulator ovarium 30-70 IU tidak mempengaruhi sekresi hormon estrogen, progesteron dan ekspresi petanda reseptivitas endometrium. Berdasarkan uji regresi Pearson terdapat hubungan bermakna antara hormon progesteron fase folikuler akhir dan fase luteal dengan ekspresi petanda reseptivitas endometrium. Lonjakan estradiol fase folikuler akhir tidak berpengaruh terhadap ekspresi petanda reseptivitas endometrium. Rasio progesteron/estradiol antara 0,20-0,49 menunjukan periode jendela implantasi, sedangkan rasio 0,26 ? 7,34 menunjukkan bahwa perkembangan pinopod mengalami regresi.

<hr>ABSTRACT
Background.Controlled ovarian stimulation procedure on FIV program adversely affect endometrial receptivity. The adverse effects occur due to non physiological changes in hormone levels. Research reports showed that pregnant success rate of FIV program were only around 30%.

Research objective.To assess the impact of ovarian stimulator on the expression of endometrial receptivity markers of implantation period.

Research methodology.Total of 16 Macaca nemestrinawere divided into four groups, one control group and three treatment groups, ie giving a dose of 30-70 IU ovarian stimulator for 10-12 days to obtain peak estradiol secretion at the end of follicular phase and continued with a dose of 3200 IU of hCG administration. Uterine tissue necropsy was performed 8-9 days after the peak secretion of estradiol. The parameters assessed were levels of the hormones estradiol, progsterone and expression of proteins HOXA10, integrin αvβ3 pinopod endometrium and steroid hormone relationship with the expression of markers of endometrial receptivity.

Results and discussion. Based on analysis of variance (anova), ovarian stimulator dose variation between 30-70 IU showed no significant difference levels of estradiol, progesterone and protein expression of integrin αvβ3 HOXA10 and the control group with treatment ($p > 0.05$). Based on Pearson correlation test there is a significant correlation between the levels of progesterone with HOXA10 protein expression and integrin αvβ3 especially in the area of functional endometrium ($p < 0.05$), whereas the hormone estradiol no significant difference ($P > 0.05$). Pinopod development which indicates implantation window period (maximum developmental stage) was obtained in the ratio of progesterone/estrogen between .20 to 0.49 and regression period is the ratio of 0.26 to 7.34.

Conclusion. Variations ovarian stimulator dose of 30-70 IU did not affect the secretion of the hormone estrogen, progesterone and endometrial receptivity marker expression. Based on Pearson regression test there was a significant relationship between the hormone progesterone late follicular phase and the luteal phase endometrial receptivity marker expression. While the surge in late follicular phase estradiol had no effect on the expression of markers of endometrial receptivity. Progesterone/estadiol ratio between 0.20 to 0.49 indicates implantation window period, while the ratio of 0.26 to 7.34 indicates that the development pinopod regresses.