

**Latar belakang:** Keberhasilan Teknik Reproduksi Bantuan (TRB) ditentukan oleh kualitas embrio yang didapat. Keefektifan stimulasi ovarium dengan klomifen sitrat dibanding GnRH agonis masih diperdebatkan.

**Tujuan:** Membandingkan kuantitas dan kualitas embrio yang dihasilkan antara stimulasi dengan klomifen sitrat vs. GnRH agonis.

**Rancangan penelitian:** Kohort retrospektif

**Hasil:** Penelitian ini melibatkan 72 subyek penelitian, 36 menggunakan klomifen sitrat dan 36 menggunakan rFSH dan GnRH agonis protokol panjang. Tidak ada perbedaan umur yang bermakna antara kedua kelompok. Lama stimulasi pada kelompok klomifen lebih pendek secara bermakna ( $4,94 \pm 0,23$  hari vs.  $21,81 \pm 3,86$  hari) dan kadar LH saat pemberian hCG lebih tinggi ( $13,71 \pm 10,55$  mIU/mL vs.  $2,52 \pm 1,61$  mIU/mL). Tidak ada perbedaan bermakna pada tebal endometrium antara kelompok klomifen dan GnRH agonis ( $7,58 \pm 1,66$  mm vs.  $10,44 \pm 2,25$  mm), kadar estradiol saat pemberian hCG ( $1514,47 \pm 862,91$  pg/mL vs.  $1739,71 \pm 941,28$  pg/mL), demikian juga efek terhadap *triple line*. Jumlah folikel pada kelompok klomifen sitrat lebih sedikit secara bermakna ( $5,19 \pm 4,35$  vs.  $13,03 \pm 6,46$ ), tetapi persentase folikel matur lebih besar ( $72,47 \pm 25,18$  vs.  $31,29 \pm 16,71$ ). Jumlah oosit hasil menuai ovum (*ovum pick up*) lebih sedikit ( $3,00 \pm 1,90$  vs.  $8,56 \pm 4,85$ ), tetapi persentase oosit matur tidak berbeda bermakna ( $39,01 \pm 39,18$  vs.  $40,74 \pm 37,20$ ). Proporsi keberhasilan kelompok klomifen sitrat dalam menghasilkan embrio berkualitas baik sebesar 76% sedangkan pada kelompok GnRH 59% (RR=1,29; 95% CI=1,06-1,57).

**Simpulan:** Jumlah embrio total yang dihasilkan kelompok GnRH agonis lebih banyak, tetapi pada kelompok klomifen proporsi embrio berkualitas baik lebih besar.

**Kata kunci:** Grade embrio, klomifen sitrat, rFSH dan GnRH agonis, stimulasi ovarium.

## Abstract

**Background:** The success of Assisted Reproductive Technology (AST) depends on the quality of the embryo. The effectiveness between ovarian stimulation using clomiphene citrate versus GnRH agonist is still debatable.

**Objectives:** To compare the quality and quantity of embryos between clomiphene citrate and rFSH plus GnRH agonist ovarian stimulation.

**Study design:** Retrospective cohort.

**Results:** Seventy two subjects were enrolled for *in vitro* fertilization during 1995-2005 in Infertility Clinic Permata Hati Dr. Sardjito Hospital. Thirty six were using clomiphene citrate and the rest were using long protocol with rFSH and GnRH agonist. Both groups were comparable in term of age. The clomiphene citrate group showed significantly shorter duration of cycle ( $4.94 \pm 0.23$  days vs.  $21.81 \pm 3.86$  days), higher level of LH serum on the day of human chorionic gonadotrophin administration ( $13.71 \pm 10.55$  mIU/mL vs.  $2.52 \pm 1.61$  mIU/mL). There were no significant differences between the clomiphene citrate and GnRH agonist groups on endometrial thickness ( $7.58 \pm 1.66$  mm vs.  $10.44 \pm 2.25$  mm), level of FSH serum on the day of human chorionic gonadotrophin administration ( $1514.47 \pm 862.91$  pg/mL vs.  $1739.71 \pm 941.28$  pg/mL) and the presence of endometrial triple line. The clomiphene citrate group showed significantly less number of follicles ( $5.19 \pm 4.35$  vs.  $13.03 \pm 6.46$ ), but the percentage of mature follicles was greater ( $72.47 \pm 25.18$  vs.  $31.29 \pm 16.71$ ), significantly less number of retrieved oocytes ( $3.00 \pm 1.90$  vs.  $8.56 \pm 4.85$ ), but no differences on the percentage of mature oocytes ( $39.01 \pm 39.18$  vs.  $40.74 \pm 37.20$ ). The proportion of good embryos derived from clomiphene stimulation was 76.3% compare to 59.2% from GnRh (RR=1.29; 95% CI=1.06-1.57).

**Conclusion:** Ovarian stimulation using GnRH agonist showed greater numbers embryo, but clomiphene group showed greater numbers of good embryos.

**Key words:** Grade embryo, clomiphene citrate, rFSH and GnRH agonist, ovarian stimulation