

Myo-inositol may improve oocyte quality in intracytoplasmic sperm injection cycles. A prospective, controlled, randomized trial

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Objective: To determine the effects of *myo*-inositol on oocyte quality in polycystic ovary syndrome (PCOS) patients undergoing intracytoplasmic sperm injection (ICSI) cycles.

Design: A prospective, controlled, randomized trial.

Setting: Assisted reproduction centers.

Patient(s): Sixty infertile PCO patients undergoing ovulation induction for ICSI.

Intervention(s): All participants underwent standard long protocol. Starting on the day of GnRH administration, 30 participants received *myo*-inositol combined with folic acid (Inofolic) 2 g twice a day and 30 control women received folic acid alone, administered continuously.

Main Outcome Measure(s): Primary end points were number of morphologically mature oocytes retrieved, embryo quality, and pregnancy and implantation rates. Secondary end points were total number of days of FSH stimulation, total dose of gonadotropin administered, E₂ level on the day of hCG administration, fertilization rate per number of retrieved oocytes, embryo cleavage rate, live birth and miscarriage rates, cancellation rate, and incidence of moderate or severe ovarian hyperstimulation syndrome.

Result(s): Total r-FSH units (1,958 ± 695 vs. 2,383 ± 578) and number of days of stimulation (11.4 ± 0.9 vs. 12.4 ± 1.4) were significantly reduced in the *myo*-inositol group. Furthermore, peak E₂ levels (2,232 ± 510 vs. 2,713 ± 595 pg/mL) at hCG administration were significantly lower in patients receiving *myo*-inositol. The mean number of oocytes retrieved did not differ in the two groups, whereas in the group cotreated with *myo*-inositol the mean number of germinal vesicles and degenerated oocytes was significantly reduced (1.0 ± 0.9 vs. 1.6 ± 1.0), with a trend for increased percentage of oocytes in metaphase II (0.82 ± 0.11% vs. 0.75 ± 0.15%).

Conclusion(s): These data show that in patients with PCOS, treatment with *myo*-inositol and folic acid, but not folic acid alone, reduces germinal vesicles and degenerated oocytes at ovum pick-up without compromising total number of retrieved oocytes. This approach, reducing E₂ levels at hCG administration, could be adopted to decrease the risk of hyperstimulation in such patients. (Fertil Steril® 2009;91:1750-4. ©2009 by American Society for Reproductive Medicine.)

Key Words: *Myo*-inositol, oocyte quality, ovarian stimulation, ICSI cycles