Abstract Details

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Testosterone priming (short or long course) before IVF does not improve the number of oocytes retrieved in poor ovarian responders: a randomized controlled trial.

Biography

Jessica Subirá sub-specialised in Reproductive Medicine at Oxford Fertility (UK). In 2015 she joined the Fertility Preservation Unit at La Fe Hospital, with a leading role since 2017. She is involved in research projects, with a focus on fertility preservation and poor ovarian response. She is currently working on her PhD comparing ovarian cortex cryopreservation and oocyte vitrification, having authored several papers in international peer-reviewed journals. Dr Subirá also works in IVIRMA group in Castellon and has been recently invited to become associate editor for Human Reproduction

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Study question:

Does follicular preparation with testosterone increase the number of metaphase II oocytes retrieved in poor ovarian responders (POR) according to Bologna criteria?

Summary answer:
The use of testosterone either in a short or long course before IVF does not increase the number of MII oocytes retrieved.

What is known already:
POR is characterized by an androgen-depleted follicular environment. Follicular preparation with testosterone has been used in several studies showing an increase in oocyte recovery in some of them while in others no benefit was shown. Recently, some have advocated that the possible effect of testosterone would only be achieved when given for several weeks prior to IVF, given the duration of folliculogenesis in women. Most of the studies published have limited the use of testosterone to the previous luteal phase before starting ovarian stimulation and/or were not randomized. Thus, follicular testosterone preparation in POR remains a controversial intervention.

Study design, size, duration:
Randomized controlled trial comparing three groups: long-testosterone (testosterone transdermal gel 12.5 mg/day during previous two cycles), short-testosterone (testosterone transdermal gel 12.5 mg/day during previous luteal phase) and control group (no testosterone). Single-blinded for physicians involved. Sample size powered to detect a difference of at least 2 MII: 21 patients per group (N=63). Serum androgen determination at randomization, before starting stimulation and on the day of trigger. Follow-up until 12th week of gestation.

Participants/materials, setting, methods:
University hospital La Fe. POR patients according to Bologna criteria. Short-antagonist protocol, fixed dose 300 IU hMG throughout stimulation. Primary outcome: number of MII retrieved. Secondary outcomes: serum androgen levels at the start of stimulation, antral follicles at the start of stimulation,

number of follicles on the day of trigger, cancellation rate, embryo quality, clinical pregnancy rate. Statistical test: Poisson regression.

Main results and the role of chance:
Forty-nine patients (group long-testosterone= 17, short-testosterone= 17, control= 14) completed the study as 14 out of the 63 randomised abandoned or were excluded due to several reasons. Basal characteristics of the patients were as follows: age (36.51+/-2.99), BMI (23.21+/-3.6), AMH (4.37 pmol/L+/- 2.54) and days of stimulation (10.15 +/- 2.26). There were no differences between groups. Testosterone levels and free androgen index at the time of starting stimulation were significantly higher in groups receiving testosterone compared to controls. There were no differences between groups for androstendione, SHBG or DHEA. Mean number of oocytes retrieved was 3.8 +/- 3.17 and mean number of MII was 2.56 +/- 2.68. For the primary outcome there were no differences between groups (long-testosterone=2.12+/-2.66, short-testosterone 2.71+/-2.95, control 2.92+/-2.43, p=0.98). The rest of results are still under analysis so we can only report on the primary outcome at this moment. Shortly we will have the remainder of results regarding cycle parameters and outcomes and we will update this abstract accordingly.

Limitations, reasons for caution:
The drop-out rate was higher than expected (22%, sample size calculated for 15%) which could affect the power to detect differences. We present only partial results regarding mainly the primary objective.

Wider implications of the findings:
Based on these preliminary results the use of testosterone in POR, either in a short or long course does not appear to increase the number of MII retrieved and therefore should not be considered as a priming strategy.

Keywords:
poor ovarian response
testosterone
metaphase II oocytes