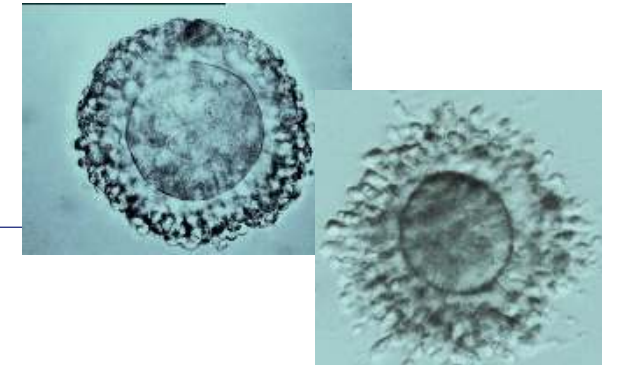


In vitro maturation and blastocyst euploidy in patients with gonadotropin resistance

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Objective

To evaluate euploid rates of blastocysts derived from gonadotropin-resistant ovary syndrome (GROS) patients in in vitro maturation (IVM) cycles

Rationale

Gonadotropin-resistant ovary syndrome (GROS) is a rare but clinically significant condition characterized by elevated FSH and LH levels despite the usual ovarian reserve.

This hormonal imbalance leads to a suboptimal follicular response, often resulting in cycle cancellations, poor oocyte yield, and compromised clinical outcomes.

IVM offers a potential treatment by allowing the retrieval of immature oocytes without the need for full gonadotropin-induced follicular maturation.

However, it remains unclear whether the altered follicular environment in GROS patients affects euploidy rates in IVM-derived embryos. Data on its efficacy and safety, particularly regarding blastocyst euploidy rates, are missing.

Material and Method

- Retrospective data between November 2019 and Mai 2024 including a total of eight GROS patients aged <38 years undergoing 25 IVM cycles. Cycle characteristics is presented in Table 1.
- Immature COCs were retrieved from small antral follicles (<12 mm) following or not a mild FSH stimulation in absence of ovulation trigger.
- COCs were cultured in supplemented IVM medium (Coopersurgical) for up to 36 hours followed by denudation and ICSI with partners sperm. Resulting blastocysts ($\geq$ BI3BCC) were subjected to trophectoderm biopsy and NGS.

Table 1. Basal characteristics of GROS patients

Age	31.6 $\pm$ 7.2 (22 – 37 yo)
AFC	9.0 $\pm$ 3.2
AMH	1.8 $\pm$ 0.5 ng/ml
BMI	27.5 $\pm$ 9.5 kg/m ²
FSH	16.2 $\pm$ 14.9 IU/L
LH	15.5 $\pm$ 14.0 IU/L
E2	25.9 $\pm$ 24.4 pg/ml
P4	0.2 $\pm$ 0.2 ng/ml

Values are expressed in mean $\pm$ SD.

Results

Table 2. Outcomes of GROS patients in IVM cycles

GVs retrieved	72 (2.9 $\pm$ 1.9)
Cycles with $\geq$ 1 GV oocyte	84%
Number of MII after IVM (%)	51.4%
% Fertilized MII oocytes	72.9%
% Usable blastocysts/MI	51.3%
% Usable blastocysts/2PN	70.3%
% Euploid/GV retrieved	13.9%
% Euploid/MI	27.0%
% Euploid/biopsied blastocyst	52.6%

Values are expressed in mean $\pm$ SD or percentages.

Euploidy rate per biopsied blastocyst in our aged-matched PGT-A infertile patients (n = 1,898) was 59.4% vs. 52.6% in this IVM cohort.

Conclusion

Blastocyst euploidy rates in GROS patients undergoing IVM are within the same range as those observed in age-matched general infertile patients undergoing conventional ovarian stimulation.