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ABSTRACTS

Selected abstracts from the 14th Congress of Turkish Foundation of Reproductive Medicine: Oral presentations [OP-01–OP-81]

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OP-01. Platelet-derived mitochondrial transplantation alters lipid metabolism profile in endometriotic lesions: a rat model study

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Objective: Altered energy metabolism and lipid homeostasis may contribute to the establishment and persistence of endometriotic lesions via membrane remodeling, inflammatory signaling and immune function. We previously showed that platelet-derived mitochondrial transplantation (pl-MT) suppresses M1 macrophage polarization and promotes lesion regression in a rat endometriosis model. This study investigated pl-MT-induced lipidomic alterations in endometriotic lesions.
Materials and Methods: Endometriosis was surgically induced in Sprague-Dawley rats by autologous uterine tissue implantation. Animals were randomized into four groups (n=7/group): Sham, ShamMit, Endo and EndoMit. Platelet-derived mitochondria were administered locally to lesions at 250 ng/μL mitochondrial protein. Tissues were analyzed by untargeted LC-qTOF-MS, and group-specific lipidomic changes were identified using PLS-DA, VIP scoring, heatmap and volcano plot analyses. Lipid species with absolute FC>2 and p<0.05 were considered significant.
Results: Multivariate analysis revealed clear separation between Sham and Endo tissues, indicating extensive remodeling of the lesion lipidome (Figure OP-01-1). Relative to Sham, Endo showed a distinct lipid signature involving DAG, TAG, PC and SM species, with pronounced reductions in DAG 34:0 and DAG 36:0. Versus Endo, pl-MT increased DAG 34:0, DAG 36:0 and PC 36:3, while decreasing PC (34:1, 34:2, 36:2, 38:4, 38:6), SM (d34:1, d36:1, d42:1), PE (38:4, 38:7e) and LPC (16:0-SN1, 18:0-SN1) species (Table OP-01-1).
Discussion: Partial restoration of DAG species, with coordinated reductions in phospholipids and sphingolipids linked to membrane dynamics and inflammatory signaling, suggests that pl-MT may reorganize lipid metabolism in the lesion microenvironment to suppress inflammation. With our previous finding of M1 macrophage suppression, these results support a mechanism by which pl-MT promotes lesion regression through integrated regulation of lipid and immune metabolism.
Conclusion: pl-MT induced distinct remodeling of the endometriotic lesion lipidome, characterized by partial restoration of selected DAG species and coordinated reductions in phospholipids and sphingolipids linked to membrane dynamics and inflammation. These findings warrant further investigation of pl-MT as a therapeutic approach for endometriosis.

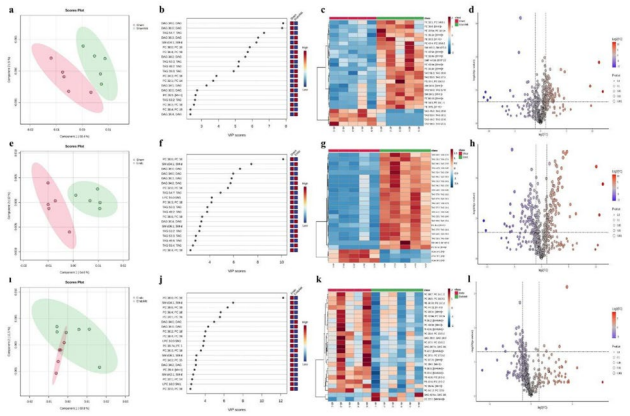
Keywords: Endometriosis, lipid metabolism, platelet-derived mitochondria, mitochondrial transplantation

Tab OP-01-1. Lipid species exhibiting significant alterations between the compared experimental groups, identified via untargeted LC–qTOF-MS lipidomic analysis. Abbreviations: DAG, diacylglycerol; TAG, triacylglycerol; PC, phosphatidylcholine; SM, sphingomyelin; PE, phosphatidylethanolamine; LPC, lysophosphatidylcholine.

Groups	Upregulated lipid species	Downregulated lipid species
Sham / ShamMit	DAG 34:1, DAG 34:2, DAG 36:3, DAG 36:4, TAG 36:0, TAG 53:2, PC 32:1, PC 34:3, PC 36:4, PC 36:5 and SM d34:1	DAG 34:0, DAG 36:0, DAG 32:0, DAG 36:4, TAG 54:7, TAG 53:2, TAG 50:3, TAG 48:2, PC 36:3 and PC 38:4
Sham / Endo	DAG 36:4, DAG 36:3, DAG 34:2, TAG 55:4, TAG 53:2, TAG 53:3, PC 32:0 and SM d34:1	DAG 36:0, DAG 34:0, TAG 50:3, TAG 48:2, TAG 48:6, TAG 54:7, PC 38:6, PC 36:3, PC 36:4, LPC 16:0-SN1 and SM d36:1
Endo / EndoMit	DAG 34:0, DAG 36:0 and PC 36:3	DAG 34:2, PC 38:6, PC 34:1, PC 36:2, PC 38:4, PC 34:2, PC 32:1, PC 32:0, SM d34:1, SM d36:1, SM d42:1, PE 38:7e, PE 38:4, LPC 16:0-SN1 and LPC 18:0-SN1

Fig OP-01-1. Multivariate lipidomic analysis of experimental groups. (a–d) Sham vs. ShamMit; (e–h) Sham vs. Endo; (i–l) Endo vs. EndoMit comparisons. For each comparison: PLS-DA scores plot showing group-specific clustering (a, e, i); VIP score plot ranking the top discriminant lipid species (b, f, j); hierarchical clustering heatmap illustrating relative abundance patterns across samples (c, g, k); and volcano plot

displaying fold-change and statistical significance of altered lipid species (d, h, l). PLS-DA, partial least squares-discriminant analysis; VIP, variable importance in projection. Multivariate Analysis of Lipidomic Differences Between Groups



OP-02. Ethanol Sclerotherapy Before IVF in Women With Ovarian Endometriomas: A Systematic Review and Meta-analysis

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Objective: To evaluate whether ethanol sclerotherapy (EST) before in vitro fertilization/intracytoplasmic sperm injection (IVF/ICSI) improves reproductive outcomes compared with expectant management in women with ovarian endometriomas.

Materials and Methods: This systematic review and meta-analysis followed PRISMA 2020 and was registered in PROSPERO (CRD420251158016). MEDLINE, the Cochrane Library, and Scopus were searched from inception to August 25, 2026. Comparative studies evaluating EST before ovarian stimulation versus no intervention were included. Risk of bias was assessed with ROBINS-I or RoB 2, and certainty of evidence with GRADE. The primary outcome was cumulative live birth rate (cLBR). Random-effects meta-analyses were performed.

Results: Seven studies, including two randomized trials and five historical cohorts, contributed 286 EST and 603 expectant-management observations. EST was associated with a higher cLBR (OR 1.93, 95% CI 1.28–2.90; I^2=16%; low-certainty evidence), corresponding to 148 additional live births per 1000 women. Cumulative clinical pregnancy rate was also higher (OR 1.94, 95% CI 1.13–3.30), as was clinical pregnancy after fresh transfer (OR 2.22, 95% CI 1.25–3.93). Live birth after fresh transfer did not differ significantly (OR 2.25, 95% CI 0.71–7.15). No significant differences were observed in miscarriage, number of oocytes retrieved, metaphase II oocytes, transferable embryos, stimulation duration, or total gonadotropin dose. Four of five cohorts were at serious risk of bias, mainly because of confounding by indication.

Conclusion: EST before IVF/ICSI may increase cumulative live birth compared with expectant management without improving oocyte or embryo yield. However, the evidence is low certainty and predominantly observational, and residual confounding cannot be excluded. Adequately powered randomized trials using cumulative live birth as the primary outcome are required before routine use can be recommended.

Keywords: assisted reproductive technology, endometrioma, ethanol sclerotherapy, in vitro fertilisation

Tab OP-02-1. GRADE summary of findings for ethanol sclerotherapy compared with expectant management before IVF or ICSI

Outcome	Studies (participants)	Risk with expectant management	Risk with EST (95% CI)	Absolute difference per 1000 (95% CI)	Relative effect (95% CI)	Certainty	Reasons for downgrading
Cumulative live birth rate	5 (770)	274 per 1000	422 per 1000 (326–523)	148 more (52–249 more)	OR 1.93 (1.28–2.90)	Low	Risk of bias (−1)
Cumulative clinical pregnancy rate	4 (676)	335 per 1000	494 per 1000 (362–624)	159 more (28–289 more)	OR 1.94 (1.13–3.30)	Very low	Risk of bias (−1); imprecision (−1)
Clinical pregnancy rate	4 (246)	257 per 1000	435 per 1000 (302–576)	177 more (45–319 more)	OR 2.22 (1.25–3.93)	Very low	Risk of bias (−1); imprecision (−1)
Live birth rate	2 (129)	300 per 1000	491 per 1000 (233–754)	191 more (67 fewer to 454 more)	OR 2.25 (0.71–7.15)	Very low	Risk of bias (−1); inconsistency (−1); imprecision (−1)
Miscarriage per clinical pregnancy	4 (267)	218 per 1000	139 per 1000 (75–245)	79 fewer (143 fewer to 26 more)	OR 0.58 (0.29–1.16)	Very low	Risk of bias (−1); imprecision (−1)
Oocytes retrieved	5 (674)	Mean 6.5–12.4	–	MD 1.13 higher (0.76 lower to 3.02 higher)	–	Very low	Risk of bias (−1); inconsistency (−1)
Metaphase II oocytes	6 (810)	Mean 5.0–10.7	–	MD 0.73 higher (0.42 lower to 1.89 higher)	–	Very low	Risk of bias (−1); inconsistency (−1)

Outcome	Studies (participants)	Risk with expectant management	Risk with EST (95% CI)	Absolute difference per 1000 (95% CI)	Relative effect (95% CI)	Certainty	Reasons for downgrading
Transferrable embryos	4 (329)	Mean 2.6–3.8	–	MD 0.45 higher (0.08 lower to 0.98 higher)	–	Very low	Risk of bias (−1); imprecision (−1)
Duration of stimulation (days)	6 (810)	Mean 9.7–12.0	–	MD 0.10 lower (0.56 lower to 0.36 higher)	–	Very low	Risk of bias (−1); imprecision (−1)
Total gonadotropin dose (IU)	6 (810)	Mean 1819–2871	–	MD 75.6 higher (50.8 lower to 201.9 higher)	–	Very low	Risk of bias (−1); imprecision (−1)

CI, confidence interval; EST, ethanol sclerotherapy; ICSI, intracytoplasmic sperm injection; IVF, in vitro fertilization; MD, mean difference; OR, odds ratio. The body of evidence is dominated by non-randomized studies and therefore starts at low certainty. Certainty was not upgraded for large effect because confounding by indication is a plausible alternative explanation. Inconsistency was downgraded where I^2 exceeded 60% or where only two studies contributed and their estimates diverged. Imprecision was downgraded where the confidence interval included both an appreciable benefit and no effect, or where fewer than 100 events contributed. Funnel plot asymmetry testing and Egger's regression require at least 10 studies and could not be performed for any outcome, so small-study effects cannot be excluded.

OP-03. Diagnostic Accuracy and Lesion-Specific Histopathological Confirmation of the Revised MUSA Criteria for Adenomyosis in Premenopausal Women Undergoing Hysterectomy

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Objective: To evaluate the diagnostic performance of the revised MUSA (Morphological Uterus Sonographic Assessment) criteria on 2D/3D transvaginal ultrasonography (TVUS) for adenomyosis against histopathology, and the lesion-level histopathological agreement of anatomically mappable sonographic findings.
Materials and Methods: In this single-centre prospective diagnostic accuracy study, 72 premenopausal women undergoing hysterectomy for benign indications (April–July 2026) were consecutively enrolled. A single operator performed standardised preoperative 2D/3D TVUS and recorded the revised MUSA criteria. Anatomically definable findings (myometrial cysts, hyperechogenic islands, subendometrial lines and buds, irregular and interrupted junctional zone [JZ]) were mapped onto uterine diagrams, and histopathological sampling targeted these sites alongside routine sampling. ROC analysis with Youden-derived cut-offs and logistic regression were performed.
Results: Adenomyosis was confirmed in 69.4% (50/72). Uterine size, weight and JZ thickness were significantly greater with adenomyosis. All criteria except fan-shaped shadowing differed significantly between groups; myometrial cysts were the most sensitive single criterion (72.0%), whereas subendometrial lines and buds, irregular JZ and translesional vascularity were 100% specific. At least one direct criterion yielded 88.0% sensitivity, 72.7% specificity and AUC 0.849 (95% CI 0.753–0.945); at least one 3D JZ finding yielded 44.0%, 95.5% and 0.703 (0.585–0.821), respectively. The total number of criteria performed best (AUC 0.855 [0.769–0.942]; 72.9% sensitivity, 86.4% specificity at ≥2). Myometrial cysts (OR 6.028; 1.565–23.220) and hyperechogenic islands (OR 5.906; 1.028–33.915) were independent predictors. Of 115 mapped findings, 96 (83.5%) were confirmed at the same site, with similar rates for direct and 3D JZ findings (82.5% vs 85.7%, p=0.661).
Conclusion: The revised MUSA criteria predict adenomyosis with clinically meaningful accuracy. Direct findings were more sensitive, whereas 3D JZ findings were more specific; the small adenomyosis-free group (n=22) limits precision. High lesion-level confirmation supports the anatomical validity of mappable findings. Diagnosis should rest on accumulated criteria rather than any single finding.

Keywords: adenomyosis, diagnostic imaging, hysterectomy, MUSA criteria

Tab OP-03-1. Diagnostic performance of the MUSA criteria in the assessment of adenomyosis

MUSA criterion	Sensitivity (%)	Specificity (%)	LR+1	LR−2	Prevalence (%)	PPV3 (%)	NPV4 (%)	Accuracy (%)
Myometrial cysts	72.0	77.3	3.168	0.362	69.4	87.8	54.8	73.6
Hyperechogenic islands	36.0	90.9	3.960	0.704	69.4	90.0	38.5	52.8
Subendometrial lines and buds	38.0	100.0	–5	0.620	69.4	100.0	41.5	56.9
Globular uterus	52.0	86.4	3.813	0.556	69.4	89.7	44.2	62.5
Asymmetrical myometrial thickening	36.0	95.5	7.920	0.670	69.4	94.7	39.6	54.2
Fan-shaped shadowing	40.0	81.8	2.200	0.733	69.4	83.3	37.5	52.8
Translesional vascularity	28.0	100.0	–5	0.720	69.4	100.0	37.9	50.0
Irregular junctional zone	40.0	100.0	–5	0.600	69.4	100.0	42.3	58.3
Interrupted junctional zone	28.0	95.5	6.160	0.754	69.4	93.3	36.8	48.6

OP-04. Abstract withdrawn

OP-05. Effect of Ovulation Induction on PI3K/AKT Signaling and miRNA Expression in Rats With Polyendocrine Metabolic Ovarian Syndrome

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Objective: Polyendocrine Metabolic Ovarian Syndrome (PMOS) is metabolic disorders that affect 4–21% of women of reproductive age. Some miRNAs have been found to be novel biomarkers for abnormal metabolism, impaired oocyte quality and reduced endometrial receptivity in PMOS. This study investigated the effect of ovulation induction on PI3K-AKT signaling pathway and miRNA expression in PMOS.
Materials and Methods: Adult female rats (n: 28) were divided into three groups. The control group received only 0.9% soydum chloride (1mg/kg) for 25 days, while PMOS and PMOS+Ovulation induction (PMOS+OI) groups received Letrozole (1mg/kg). In the ovulation induction group, superovulation was performed by intraperitoneal injection of 150–300 IU/kg pregnant mare serum gonadotropin on the 25th day, followed after 48 hours by 150–300 IU/kg human chorionic gonadotropin. Blood FSH, estradiol and testosterone levels were analyzed and ovarian tissues were evaluated histopathologically. PI3K/AKT pathway was evaluated immunohistochemically and miRNA-451a, miRNA-33b-5p, miRNA-378a-5p, miRNA-486-5p, miRNA-140, miRNA-320a expressions were determined by RT-PCR
Results: Vaginal smear findings and blood hormone levels showed that we created an experimental PMOS model. Ovulation induction further increased testosterone and estradiol levels and decreased FSH levels significantly compared to the control group ($p<0.05$). miR-140,451 and 378 expression decreased and miR-451 increased significantly in PMOS+OI group ($p<0.05$). Immunohistochemical analysis showed that PI3K, AKT, p-PI3K, p-AKT expressions increased statistically significantly in PMOS+OI group compared to PMOS group.
Conclusion: The present study demonstrated that ovulation induction modulated hormonal profiles, miRNA expression, and PI3K/AKT signaling in an experimental rat model of PMOS, with significant changes in serum hormone levels, altered expression of key regulatory miRNAs, and enhanced activation of the PI3K/AKT pathway. Collectively, these findings suggest that activation of the PI3K/AKT signaling pathway and miRNAs may represent an important mechanism underlying the ovarian response to ovulation induction in PMOS and may provide a promising molecular target for future therapeutic strategies aimed at improving reproductive outcomes.

Keywords: Infertility, miRNA, Ovulation Induction, PI3K/Akt pathway

OP-06. Uterine Closure Technique at Primary Caesarean and Long-Term Isthmocele Formation: A Two-Year Follow-Up of a Randomized Controlled Trial and Its Relevance to Fertility

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Introduction: The caesarean scar niche (isthmocele) is an underrecognised iatrogenic cause of subfertility. Fluid trapped in the niche reaches the endometrial cavity and, with chronic scar inflammation, lowers endometrial receptivity, so affected women show reduced implantation and clinical pregnancy rates in IVF/ICSI. This impact depends mainly on niche depth and residual myometrial thickness rather than on the scar itself. Because uterine closure at the first caesarean is the most controllable determinant of these dimensions, we compared two closure techniques and the niche they left two years later.
Materials and Methods: Sixty women undergoing their first caesarean were randomised 1:1 to a double-layer, incision-parallel, non-locking closure or a single-layer locked closure. A blinded assessor re-examined them by transvaginal ultrasound a median of about 24 months later. We recorded any scar defect (indentation ≥2 mm), its depth and length, residual and adjacent myometrial thickness (RMT, AMT), fold distances and symptoms, and compared groups with Mann–Whitney U and Fisher exact tests.
Results: The groups were comparable for age and follow-up. A defect was far less common after the double-layer closure, which also left shallower and shorter niches, greater residual myometrium and fewer symptoms (Table OP-06-1). Adjacent myometrial thickness and the uterovesical fold distance did not differ between groups.
Conclusion: Two years after a first caesarean, a double-layer incision-parallel non-locking closure roughly halved symptoms and left smaller niches with thicker residual myometrium than a single-layer locked closure. These are precisely the features that determine the reproductive impact of a niche, so keeping it small at the first caesarean is a simple, low-cost measure that may protect future fertility and warrants larger trials with implantation and live-birth endpoints.

Keywords: Caesarean scar defect, implantation failure, recurrent pregnancy loss, infertility

Tab OP-06-1. Long-term participant, ultrasonographic and clinical outcomes by uterine closure technique.

Variable	Intervention (n=30)	Control (n=30)	P value
Participant characteristics			
Age, years	31.0 (27.25–34.0)	32.50 (29.0–35.0)	0.482
Postoperative follow-up, months	25.0 (22.0–27.0)	24.0 (22.0–26.0)	0.281
Ultrasonographic measurements			
Scar indentation depth, mm	2.05 (1.70–3.27)	4.55 (3.50–5.30)	<0.001
Scar indentation length, mm	1.85 (1.60–2.80)	5.45 (3.33–6.80)	<0.001
Residual myometrial thickness (RMT), mm	7.00 (6.33–8.07)	6.35 (5.53–7.25)	0.003
Adjacent myometrial thickness (AMT), mm	13.0 (11.77–14.0)	14.0 (12.0–14.0)	0.485
Uterovesical fold distance, mm	7.70 (5.70–9.0)	8.25 (7.83–9.43)	0.088
Vesicovaginal fold distance, mm	8.45 (6.93–10.17)	10.05 (8.70–11.32)	0.038
External os distance, mm*	22.20 (17.38–25.33) (n=20)	19.00 (17.57–22.43) (n=28)	0.250
Scar defect and symptom outcomes, n (%)			

Variable	Intervention (n=30)	Control (n=30)	P value
Caesarean scar defect present	18 (60.0)	27 (90.0)	0.015
Symptoms present	7 (23.3)	18 (60.0)	0.008

**External os distance was compared only in women with a visible indentation. Data are median (25th–75th percentile) or n (%). All P values are two-sided; continuous variables were compared with the Mann–Whitney U test and categorical variables with the Fisher exact test.*

OP-07. Peri-Transfer Serum Progesterone and Live Birth in Programmed Frozen Embryo Transfer: ARoute-Specific Dose-Response Meta-analysis

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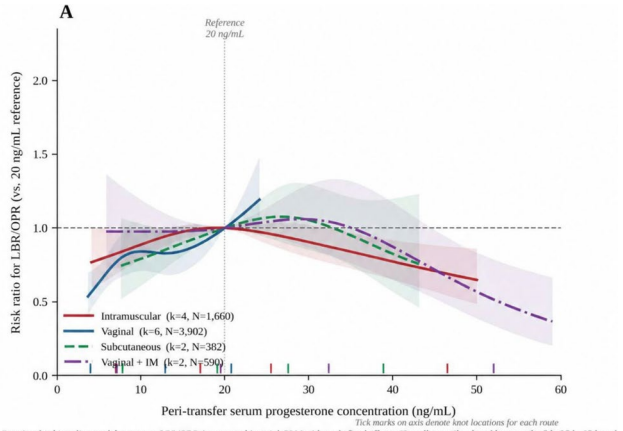
Objective: To characterize the relationship between peri-transfer progesterone and live birth/ongoing pregnancy (LBR/OPR) in frozen embryo transfer (FET).
Materials and Methods: Systematic review and meta-analysis. MEDLINE, Embase, and Cochrane Library were searched through May 8, 2026. Studies reporting LBR/OPR (OPR substituted when necessary) by progesterone level were included. Route-specific restricted cubic spline analyses examined intramuscular (IM), vaginal, subcutaneous (SC), and combined vaginal-plus-IM regimens, using 20 ng/mL as reference. Complementary threshold meta-analyses evaluated low progesterone and high-progesterone ("ceiling") effects.
Results: Fourteen studies (16 arms; 16,380 FET cycles) were included. The association between serum progesterone levels and LBR/OPR differed by administration route (Figure OP-07-1). IM regimens (4 arms; N=1,660) demonstrated a nonlinear, inverted U-shaped association (P=.006), with reduced LBR/OPR at 40 ng/mL (RR, 0.79; 95% CI, 0.67–0.93). Vaginal regimens (6 arms; N=3,902) showed a relationship driven by low concentrations (P<.001): RR was 0.68 (95% CI, 0.58–0.80) at 5 ng/mL and 0.79 (95% CI, 0.66–0.94) at 8 ng/mL; data above 25 ng/mL were insufficient. Combined vaginal-plus-IM regimens (2 arms; N=590) showed a ceiling effect (P=.002), with lower LBR/OPR above 45 ng/mL (RR, 0.72; 95% CI, 0.52–0.99). SC regimens (2 arms; N=382) showed similar but a non-significant pattern (P=.122). In threshold meta-analysis, progesterone <10 ng/mL (6 arms) was associated with 25% lower LBR/OPR (RR, 0.75; 95% CI, 0.67–0.83; P<.001). High progesterone (>27.23 to ≥40 ng/mL; 9 arms) showed a nonsignificant trend toward lower LBR/OPR (RR, 0.87; 95% CI, 0.75–1.02), without between-route heterogeneity (P=.105).
Conclusion: Associations between peri-transfer serum progesterone and LBR/OPR were route-specific and nonlinear. Low concentrations (approximately 10 ng/mL) predict poorer vaginal-regimen outcomes, whereas a ceiling effect occurs around 40 ng/mL with IM and combined vaginal-plus-IM regimens. These findings support the conclusion that route-specific peri-transfer progesterone monitoring is preferable to using a universal threshold.

Keywords: progesterone, frozen embryo transfer, programmed frozen embryo transfer, in-vitro fertilization

Fig OP-07-1. Route-specific restricted cubic spline dose-response of live birth / ongoing pregnancy rate (LBR/OPR) by peri-transfer serum progesterone concentration in programmed FET.



Tick marks on axis denote knot locations for each route

Restricted cubic spline model summary, LBR/OPR (one-stage binomial GLM with study fixed effects; Harrell quantile-placed knots at the 5th, 35th, 65th and 95th percentiles of each route's dose distribution; shared 20 ng/mL reference; log link, results reported as risk ratios)

Route	k	Strata	N	Dose range (ng/mL)	Knots (ng/mL)	LR_1 (df=3) overall p	LR_2 (df=2) non-linearity p
Intramuscular	4	15	1,660	4.1–50.0	7.0, 17.1, 25.5, 46.5	12.42, p=0.006*	10.89, p=0.004*
Vaginal	6	16	3,902	3.6–24.2	3.9, 7.1, 12.9, 20.8	51.65, p=0.000*	5.00, p=0.082
Subcutaneous	2	8	382	7.6–43.1	7.8, 19.1, 27.6, 38.9	5.79, p=0.122	5.21, p=0.074
Vaginal + IM	2	8	590	5.9–59.0	7.1, 19.5, 32.4, 52.0	15.40, p=0.002*	9.70, p=0.008*

*p<0.05. LR_1 tests overall dose-response (full spline vs. study-fixed-effects-only model, 3 df); LR_2 tests non-linearity (full spline vs. linear-only model, 2 df).

OP-08. Decide IVF: A Quantitative, Conditional Decision-Support Framework for IVF Add-On Therapies: A Proof-of-Concept Methodological Template Covering 48 Adjuvants with Explicit Baseline Calibration

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Objective: IVF add-ons are widely offered despite limited or phenotype-dependent evidence. Existing summaries, including the HFEA traffic-light system, indicate the direction of evidence but not effect magnitude, phenotype-specific conditionality, or cost. We present a proof-of-concept quantitative decision-support framework expressing the conditional effects of 48 adjuvants on explicitly calibrated baseline outcomes.
Materials and Methods: A standalone HTML5 tool catalogued each add-on by HFEA rating, ESHRE 2023 and SIFES-MR 2025 positions, GRADE certainty, and PubMed sources. Relative risks with 95% confidence intervals were encoded for live birth per oocyte retrieval and started cycle, clinical pregnancy, miscarriage, ovarian hyperstimulation syndrome, and multiple pregnancy. Effects are displayed only when predefined indications match patient phenotype. Fourteen phenotype fields, including age, ovarian reserve, prior-cycle history, POSEIDON class, sperm severity, endometriosis, adenomyosis, fibroids, endometrial factors, thrombophilia, hydrosalpinx, smoking, and vitamin-D status, drive the engine. A competitor-resolution algorithm prevents double-counting of overlapping interventions, while unsupported

phenotype combinations generate no effect estimate. Baseline live-birth chains are user-calibrated, and costs are modelled in multiple currencies. Trustworthiness screening flags potentially unreliable evidence, and pooled estimates were aligned with Cochrane 2026.
Results: For each phenotype, the framework presents baseline-versus-add-on outcomes with confidence bounds, GRADE-tagged endpoints, society positions, costs, and clinician and patient views. Conditional logic produces different recommendations across phenotypes; for example, a benefit signal restricted to true poor ovarian response disappears in unselected antagonist cycles.
Conclusion: Conditional, phenotype-gated, baseline-calibrated modelling offers a reproducible template for quantitative, transparent, and cost-aware counselling on IVF add-ons. This proof-of-concept requires prospective validation and complements rather than replaces society guidance. Declaration of Conflict of Interest: The authors declare no conflicts of interest. Funding: No external funding was received for this study.

Keywords: In vitro fertilisation, add-on therapies, clinical decision support, cost-effectiveness

OP-09. Factors Affecting Oocyte Yield and Oocyte Maturation in IVF/ICSI Cycles Triggered with a GnRH Agonist

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Objective: To identify factors associated with oocyte retrieval rate (ORR), oocyte maturation rate (OMR), and mature oocyte-to-aspirated follicle ratio (MPA) in GnRH agonist-triggered IVF/ICSI cycles.
Materials and Methods: This retrospective study included first IVF/ICSI cycles of 282 patients receiving GnRH agonist triggering at Hacettepe University (2018–2026). GnRH agonist triggering was used in high responders (≥15 follicles ≥11 mm); all cycles were freeze-all. Suppression used GnRH antagonist (n=80) or progestin-primed ovarian stimulation (PPOS;n=202). Beta-binomial multivariable models included age, BMI, PCOS, AMH, basal LH/estradiol, trigger-day progesterone/estradiol, total gonadotropin dose, stimulation duration, and suppression protocol; interactions assessed suppression-protocol effect modification.
Results: Mean (SD) age, BMI, and retrieved-oocyte count were 30.4(4.8) years, 25.4(5.1) kg/m², and 17.0(10.8). Fully adjusted models showed lower ORR with older age (aOR=0.97;95%CI=0.94– 0.99; p=0.013) and higher gonadotropin-dose (per1000 IU: aOR=0.74;95%CI=0.60–0.92; p=0.006). Low trigger-day progesterone (≤1.01ng/mL) was borderline associated with lower ORR versus middle tertile (1.01–1.58 ng/mL;aOR=0.74;95%CI=0.55–1.00; p=0.052); remaining covariates were non- significant. PPOS versus antagonist was not associated with ORR (aOR=1.06;95%CI=0.78–1.45; p=0.707), OMR (aOR=0.78;95%CI=0.59–1.05; p=0.098), or MPA (aOR=0.91;95%CI=0.72– 1.16; p=0.448). No independent OMR predictor was identified. Gonadotropin-dose interacted with protocol for ORR (p=0.009): higher dose was associated with lower ORR in PPOS (OR=0.61;95%CI=0.47–0.80), but not antagonist cycles (OR=1.26;95%CI=0.79–2.02). In antagonist cycles, low/high basal LH tertiles were associated with lower MPA versus middle tertile (OR=0.54;95%CI=0.33–0.86; interaction p=0.036 and OR=0.50;95%CI=0.29–0.86; interaction p=0.020), but not in PPOS (OR=0.97;95%CI=0.73–1.30 and OR=1.02;95%CI=0.78–1.34). No other interaction was significant.
Discussion: Protocol-specific gonadotropin-dose and basal-LH associations suggest oocyte-yield determinants may differ between PPOS and antagonist suppression, requiring prospective validation before informing trigger selection.
Conclusion: Older age and higher gonadotropin-dose requirement were associated with lower ORR; low and high basal LH were associated with lower MPA specifically in antagonist cycles. Oocyte-yield assessment after GnRH agonist triggering should integrate patient characteristics, endocrine profile, stimulation intensity, and suppression protocol.

Keywords: GnRH agonist trigger, IVF/ICSI, oocyte yield, oocyte maturation

OP-10. Transgenerational Effects of Maternal Leptin Exposure on Male Fertility

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Introduction: Within the developmental origins of health and disease framework, gestational metabolic signals are increasingly recognized as critical determinants of male reproductive ontogeny; nevertheless, the persistent effects of maternal leptin exposure on sperm quality in subsequent generations remain incompletely elucidated. This study evaluated whether gestational leptin administration alters quantitative, functional, and morphological sperm parameters in second-generation (transgenerational) male offspring.
Materials and Methods: Twelve-week-old pregnant Balb/c mice were allocated to leptin-treated or control groups. From gestational days 1–20, mice received daily subcutaneous leptin (10 µg/kg) or distilled water. Male offspring were raised under standard conditions and evaluated at 10 weeks for body weight, epididymal sperm count and motility, and Spermac-based morphology (100X). Motility was classified microscopically, and at least 200 spermatozoa/sample were assessed for structural abnormalities (40X). Groups were compared using Student's t-test or ANOVA; $p<0.05$ indicated significance.
Results: Body weight was comparable between leptin-exposed and control offspring ($p>0.05$), indicating no overt alteration in somatic growth. Leptin-exposed males had more motile sperm, a higher total sperm count, and fewer immotile sperm ($p<0.05$). However, morphologically normal sperm decreased, while curved-tail abnormalities increased ($p<0.05$).
Conclusion: Gestational leptin exposure selectively programs male gamete quality, producing a discordant phenotype in which increased sperm number and motility coexist with impaired structural integrity. Motility alone may therefore overestimate reproductive competence after developmental leptin exposure. These findings link the gestational metabolic environment to later male reproductive potential and warrant studies incorporating fertilization, embryo development, and live-birth outcomes. From a clinical translation perspective, they underscore the importance of maternal metabolic environment in shaping reproductive outcomes across generations. Therapeutically, these results suggest that optimizing metabolic health during pregnancy may represent a novel strategy to mitigate infertility risk in offspring, bridging experimental evidence with human reproductive medicine.

Keywords: Gestational Leptin Exposure, Male Gamete Quality, Male Fertility, Sperm Motility

OP-11. Corpus Luteum Laterality and Uterine Artery Blood Flow: A Prospective Serial Ultrasound Study in Natural Menstrual Cycles

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Objective: Luteal-phase reductions in uterine artery impedance have been reported, but whether the corpus luteum (CL) also exerts a local effect on ipsilateral uterine artery blood flow is unknown. We assessed whether uterine artery pulsatility index (PI) differs by CL laterality and whether mean PI changes after CL formation.
Materials and Methods: In this prospective longitudinal study, 21 women with regular menstrual cycles underwent transvaginal ultrasonography approximately every three days. PI was measured bilaterally at each visit, and the first visualization and ovarian side of the CL were recorded prospectively. Examinations were classified as before or after CL appearance and arteries as ipsilateral or contralateral. Linear mixed-effects models with cycles nested within women were adjusted for cycle day; generalized estimating equations and cluster-robust standard errors provided confirmatory analyses. Because CL laterality could alternate between cycles, participants contributed repeated within-subject observations.
Results: Mean uterine artery PI was lower after CL appearance (within-woman means 3.04 versus 2.79; mean reduction 0.25; paired t $p = 0.010$, Wilcoxon $p = 0.038$; unadjusted mixed model −0.22, 95% CI −0.35 to −0.09, $p = 0.001$). After adjustment for cycle day, this was attenuated to borderline significance (−0.22, 95% CI −0.44 to 0.00, $p = 0.052$). Ipsilateral and contralateral PI were comparable (mean difference 0.02; paired t $p = 0.71$, Wilcoxon $p = 0.85$), the adjusted difference was −0.005 (95% CI −0.30 to 0.29, $p = 0.97$), and the laterality-by-phase interaction was 0.05 (95% CI −0.13 to 0.23, $p = 0.57$).
Discussion: Uterine vascular impedance was lower after CL appearance, but the reduction was bilateral and attenuated after accounting for cycle timing. Because CL formation coincides with the luteal phase, a CL-specific systemic effect cannot be distinguished from luteal-phase physiology.
Conclusion: Uterine artery impedance decreases bilaterally during the luteal phase of natural menstrual cycles. CL laterality does not appear to influence uterine artery blood flow

Keywords: Corpus luteum, Uterine artery Pulsatility index, Natural menstrual cycle, Corpus luteum laterality

OP-12. Estrogen Receptor-Dependent Activation of Anorexigenic Nesfatin-1 Neurons in the Hypothalamic Paraventricular Nucleus

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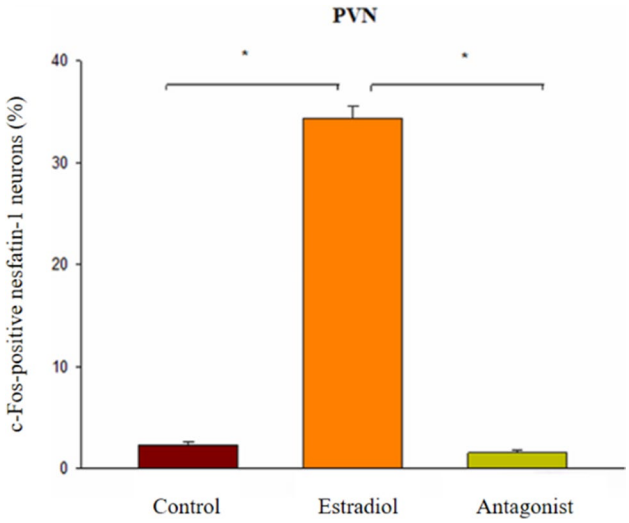
Introduction: The hypothalamus is the primary neuroendocrine center coordinating energy homeostasis and reproductive functions. Nesfatin-1 is an anorexigenic neuropeptide synthesized in the hypothalamus and involved in the regulation of food intake and energy balance. The paraventricular nucleus (PVN) is one of the hypothalamic nuclei playing an important role in the regulation of energy homeostasis and neuroendocrine functions.
Objective: Previous studies conducted in our laboratory demonstrated the colocalization of nesfatin-1 neurons with estrogen receptors. The present study aimed to investigate whether estrogen induces neuronal activation in nesfatin-1 neurons and whether this effect can be suppressed by fulvestrant, a pure estrogen receptor antagonist.
Materials and Methods: Adult ovariectomized female Sprague-Dawley rats were randomly divided into three groups (n=5/group): control (sesame oil), estradiol (17β-estradiol, 1 mg/kg), and antagonist (fulvestrant, 3 mg/kg + 17β-estradiol, 1 mg/kg). Following perfusion fixation, brain sections underwent double immunohistochemical staining using antibodies against nesfatin-1 and c-Fos, a marker of neuronal activation. Microscopic analyses determined the percentage of c-Fos-positive nesfatin-1 neurons among the total nesfatin-1-positive neuronal population. Statistical analyses were performed using one-way ANOVA followed by Tukey's post hoc test ($p<0.05$).
Results: The percentage of c-Fos-positive nesfatin-1 neurons in the PVN was 2.33±0.37% in the control group, 34.37±1.10% in the estradiol group, and 1.55±0.30% in the antagonist group. Estradiol administration significantly increased the proportion of c-Fos-positive nesfatin-1 neurons compared with the control group ($p<0.001$), whereas fulvestrant significantly suppressed this increase ($p<0.001$). No significant difference was observed between the control and antagonist groups ($p=0.714$).
Conclusion: 17β-estradiol administration significantly increased c-Fos immunoreactivity in a subset of nesfatin-1-positive neurons within the paraventricular nucleus. The inhibition of this activation by fulvestrant indicates that the observed response is mediated through estrogen receptors. The estrogen-responsive activation observed in PVN nesfatin-1-positive neurons suggests that estrogen may play a regulatory role in the neuroendocrine interaction between energy homeostasis and reproductive functions.

Keywords: c-Fos, Estrogen, Fulvestrant, Hypothalamus

Fig OP-12-1. Percentage of c-Fos-positive nesfatin-1 neurons in the PVN of the control, estradiol, and antagonist groups. Data are presented as mean ± SEM. $p<0.001$ for the indicated comparisons



OP-13. Conventional blastocyst morphology retains prognostic value after PGT-A: A retrospective study of single euploid embryo transfers

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Objective: To investigate whether conventional embryo morphology retains prognostic value following preimplantation genetic testing for aneuploidy (PGT-A), by evaluating the association between

cleavage-stage, pre-biopsy, and post-biopsy morphology and reproductive outcomes after single euploid embryo transfer (SET).
Materials and Methods: This retrospective cohort study included 78 single euploid embryo transfers in 65 patients at a private IVF center. Analyses were per transfer, using logistic regression with patient-level clustered robust standard errors. Cleavage-stage (day 2 and day 3), pre-biopsy blastocyst (expansion, inner cell mass [ICM], trophectoderm [TE]) and post-biopsy morphology were graded by Gardner and Schoolcraft criteria. The primary outcome was β-hCG positivity (52 positive, 26 negative). Secondary analysis evaluated live birth among 74 transfers with known outcomes (36 live births and 38 non-live births).
Results: In age-adjusted analysis, each one-grade improvement in pre-biopsy ICM morphology was associated with higher odds of β-hCG positivity (aOR 2.16, 95% CI 1.11–4.22; p=0.024). Pregnancy rates increased progressively according to ICM grade (44.4%, 64.7%, and 79.3% for grades C, B, and A, respectively). Sensitivity analyses additionally adjusting for pre-biopsy TE grade yielded similar estimates with wider confidence intervals. Higher pre-biopsy ICM grade also showed a trend toward improved live birth (aOR 2.05, 95% CI 0.91–4.64; p=0.085). Pre-biopsy TE grade and day-3 fragmentation were associated with live birth in secondary analyses, but these associations were not retained after correction for multiple testing.
Discussion: Conventional blastocyst morphology, particularly pre-biopsy ICM quality, continued to provide prognostic information despite embryo selection by PGT-A. The attenuation after additional adjustment for TE likely reflects the modest sample size and the biological correlation between blastocyst morphological components rather than the absence of a true effect.
Conclusion: Pre-biopsy ICM morphology remains a clinically relevant predictor of implantation following single euploid embryo transfer and provides prognostic information beyond chromosomal status. Conventional morphological assessment should therefore remain an integral component of embryo selection alongside PGT-A.

Keywords: PGT-A, euploid embryo, embryo morphology, inner cell mass

OP-14. Association Between Granulosa Cell Gonadotrophin Receptor Levels and Ovarian Response for Women with Normal Ovarian Reserve Markers

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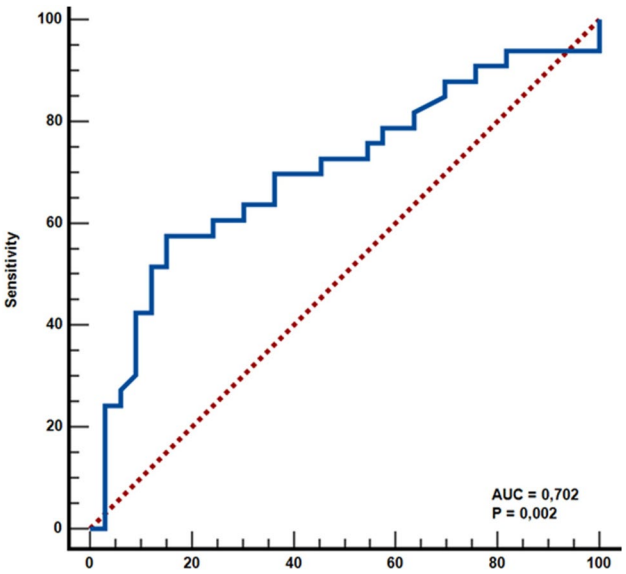
Objective: To evaluate whether granulosa cell follicle-stimulating hormone receptor (FSHR) and luteinizing hormone receptor (LHR) expression differs between normoresponders and unexpected poor responders among women with normal ovarian reserve markers.
Materials and Methods: This prospective case-control study included 66 women undergoing ICSI who were expected to be normoresponders based on AMH ≥1.2 ng/mL and AFC ≥10. Following ovarian stimulation with FSH monotherapy, patients were classified as unexpected poor responders (≤9 oocytes) or normoresponders (≥10 oocytes). Granulosa cells collected during oocyte retrieval were assessed for FSHR and LHR expression by ELISA. Baseline characteristics, receptor levels, embryological outcomes, and clinical parameters were compared. Statistical analyses included group comparisons, correlation analyses, ROC analysis, and multivariate negative binomial regression.
Results: Age and BMI were similar between groups. AMH (2.01 vs. 3.26 ng/mL; p=0.002) and AFC (11 vs. 15; p=0.003) were lower in unexpected poor responders. FSHR levels did not differ (p=0.971), whereas LHR levels were significantly higher in poor responders (p=0.005). Total gonadotropin dose was also higher in poor responders (2475 vs. 2250 IU; p=0.028). LHR levels were negatively associated with the number of small antral follicles (<5 mm; p=0.004), while FSHR levels correlated negatively with larger antral follicles (>10 mm; p=0.044). LHR predicted poor ovarian response with moderate accuracy (AUC=0.702; p=0.002), with 57.6% sensitivity and 84.9% specificity at a cutoff >6.35 ng/mL. After adjustment for age, BMI, AMH, and gonadotropin dose, LHR remained independently associated with MII oocyte number (IRR=0.73; p<0.001), corresponding to a 27% reduction per unit increase in LHR.
Conclusion: Increased granulosa cell LHR expression is independently associated with reduced ovarian response and lower mature oocyte yield. Altered LH signaling may contribute to unexpected poor ovarian response beyond conventional ovarian reserve markers.

Keywords: Infertility, ovarian response, luteinizing hormone receptor

Fig OP-14-1. Evaluation of the Predictive Capacity of LH Receptor Levels for Poor Ovarian Response Using ROC Curve Analys



OP-15. Lipophagy-mediated steroidogenesis is preserved in luteinized mural granulosa cells of patients undergoing progestin-protocol ovarian stimulation

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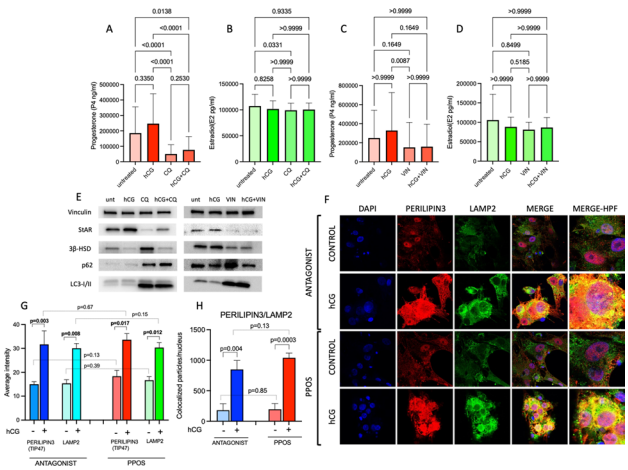
Objective: This study investigated whether progestin exposure during progestin-protocol ovarian stimulation (PPOS) alters lipophagy-mediated steroidogenesis in human luteinized mural granulosa cells (GCs) compared with gonadotropin-releasing hormone (GnRH) antagonist cycles.
Materials and Methods: Luteinized mural GCs from PPOS and GnRH antagonist cycles were treated with chloroquine (CQ) or vinblastine (VIN), with or without hCG. Autophagy markers p62 and LC3, and steroidogenic proteins StAR and 3β-HSD were assessed by western blotting. Lipophagy was evaluated by perilipin3/LAMP2 dual immunofluorescence with quantification of mean intensities and colocalized particles per nucleus. Treatment effects were evaluated using Friedman tests followed

by Dunn's multiple comparisons. Progesterone (P4) and estradiol (E2) were measured by electrochemiluminescence immunoassay.
Results: In PPOS-derived cells, CQ markedly altered P4 production compared to control (p<0.0001) and reduced hCG-stimulated P4 versus hCG alone (p<0.0001), whereas E2 was unchanged (p=0.0503). VIN reduced P4 versus hCG (p=0.0087) without affecting E2 (p=0.372). VIN increased LC3-II accumulation (p=0.0027) and reduced 3β-HSD expression (p=0.0009), whereas CQ caused p62 and LC3 accumulation and reduced StAR expression in western blotting. In both PPOS and Antagonist-derived cells, hCG+CQ increased perilipin3–LAMP2 colocalized particle count per nucleus (2.20-fold and 1.96-fold, respectively). VIN-associated colocalization differed between protocols: hCG+VIN increased colocalization 3.00-fold in PPOS-derived cells but reduced it to 0.40-fold of untreated levels in antagonist-derived cells. The colocalization of perilipin3 with LAMP2 was significantly enhanced after hCG treatment in both stimulation protocols.
Discussion: PPOS-derived granulosa cells retained hCG-responsive and autophagy-sensitive P4 production. CQ responses were qualitatively concordant with previously reported antagonist-cycle findings. The divergent VIN-associated colocalization may indicate protocol-specific effects at the autophagosome–lysosome fusion stage or reflect limited replication.
Conclusion: Progestin exposure during PPOS does not appear to abolish lipophagy-mediated steroidogenic responses. These preliminary findings support preserved CQ-sensitive lipophagy and steroidogenesis after PPOS, while the VIN response requires confirmation with additional independent biological replicates.

Keywords: Progestin-protocol ovarian stimulation, Autophagy, Steroidogenesis, Lipophagy

Fig OP-15-1. Steroidogenic output, autophagy markers and lipophagy in luteinized mural granulosa cells from progestin-primed and GnRH antagonist cycles. Bar graphs show progesterone and estradiol concentrations after chloroquine or vinblastine treatment with or without hCG; western blots show p62, LC3, StAR and 3β-HSD expression; confocal panels show perilipin3 (red) and LAMP2 (green) dual immunofluorescence with nuclear counterstain (blue) and the merged images.



OP-16. Microplastics at the Maternal-Fetal Interface: Placental Findings in Assisted Reproductive Technology and Spontaneous Pregnancies

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Objective: Microplastics, generally defined as plastic particles ranging from 0.001 to 5 mm in size, are widespread environmental contaminants that can enter ecosystems through soil, air and water and may accumulate in living tissues through the food chain. Their potential effects on reproductive health have recently gained increasing attention. This study aimed to investigate the presence of microplastic-like structures in placental tissues of women who conceived following infertility treatment with assisted reproductive technologies (ART) and to compare the findings with those of women who conceived spontaneously without infertility treatment.
Materials and Methods: Women who presented to the Department of Obstetrics and Gynecology, Süleyman Demirel University Faculty of Medicine, for delivery at term were included in the study. Participants who achieved pregnancy following ART due to infertility constituted the ART (infertility) group, while women who conceived spontaneously constituted the control (fertile) group. Placental tissue samples obtained after delivery were examined at different magnification levels using scanning electron microscopy (SEM) for the detection of morphological structures compatible with microplastics. The findings were evaluated qualitatively.
Results: SEM analysis revealed morphological structures compatible with microplastic particles in placental tissue samples from both groups. Qualitative evaluation demonstrated more prominent and denser microplastic-like structures in the placental tissues of the ART (infertility) group compared with the spontaneous pregnancy (fertile) group.
Conclusion: The detection of microplastic-like structures in placental tissues suggests the possibility of environmental microplastic exposure at the maternal–fetal interface. The greater density of these structures observed in the infertility group is noteworthy. However, individual factors such as dietary habits, lifestyle, and frequency of plastic product use, together with the limited sample size, represent important limitations of the study. Further studies with larger sample sizes and quantitative analyses are needed to clarify the potential pathophysiological effects of microplastics on reproductive health, infertility, and pregnancy.

Keywords: Microplastics, placenta, assisted reproductive technologies, scanning electron microscopy

OP-17. Spontaneous Pregnancies and Long-Term Oncological Outcomes After Dual-Site Ovarian Tissue Transplantation in Acute Leukemia Survivors: A Two-Case Series

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Objective: To report long-term ovarian, reproductive, and oncological outcomes after orthotopic ovarian tissue transplantation (OTT) in two acute leukemia survivors, with particular emphasis on spontaneous conception following previous IVF-related live births.
Materials and Methods: This retrospective two-case series included one survivor of Philadelphia chromosome-positive acute lymphoblastic leukemia and one survivor of acute myeloid leukemia-M2 with t(8;21). Both underwent ovarian tissue cryopreservation before hematopoietic stem cell transplantation and subsequently developed premature ovarian insufficiency. Before OTT, randomly selected cortical fragments were assessed for malignant contamination using immunohistochemistry and disease-specific molecular testing, including BCR::ABL quantitative polymerase chain reaction and t(8;21) fluorescence in situ hybridization. Orthotopic transplantation involved mesosalpingeal and intraovarian graft sites. Ovarian

recovery, reproductive outcomes, spontaneous pregnancies, and oncological follow-up were evaluated.
Results: Ovarian function resumed within four months after OTT in the ALL survivor and within three months in the AML survivor. The ALL survivor achieved a live birth after IVF following her first transplantation. After repeat dual-site OTT, two euploid blastocysts were obtained; one transfer resulted in miscarriage at 13 weeks. She subsequently conceived spontaneously while maintaining regular menstrual cycles. The AML survivor achieved a live birth after transfer of a euploid embryo derived from a pelvic graft and subsequently conceived spontaneously during lactation. No leukemic relapse occurred during 97 and 57 months of post-transplant follow-up, respectively.
Conclusion: Orthotopic OTT restored endocrine function and reproductive potential in two carefully selected acute leukemia survivors, allowing IVF-related live births followed by spontaneous pregnancies. These observations suggest that sustained natural fertility may be possible after OTT. However, the anatomical origin of spontaneously conceived oocytes cannot be established, and negative minimal residual disease testing should be interpreted as risk reduction rather than proof of graft safety.

Keywords: Ovarian tissue cryopreservation, Ovarian tissue transplantation, Acute leukemia, Fertility preservation

Tab OP-17-1. Clinical, transplantation, reproductive and oncological outcomes of the two cases

Characteristic	Case 1	Case 2
Leukemia diagnosis	Ph+ ALL	AML-M2, t(8;21)
Age at OTC	19 years	28 years
Conditioning/HSCT	FluCy–TBI + cord blood transplantation	Busulfan–cyclophosphamide + allogeneic HSCT
Premature ovarian insufficiency	Yes	Yes
OTT procedure	First mesosalpingeal OTT; subsequent dual-site repeat OTT	Dual-site OTT
Time to ovarian recovery	4 months	3 months
First live birth	IVF, January 2019	IVF, June 2024
Subsequent spontaneous pregnancy	Ongoing, 22 weeks	Ongoing, 23 weeks
MRD assessment	IHC + BCR::ABL qPCR	IHC + t(8;21) FISH
Follow-up after OTT	97 months	57 months
Leukemic relapse	None	None

OP-18. Fresh Versus Cryopreserved Testicular Sperm in ICSI Cycles: Comparison of Embryologic and Clinical Outcomes

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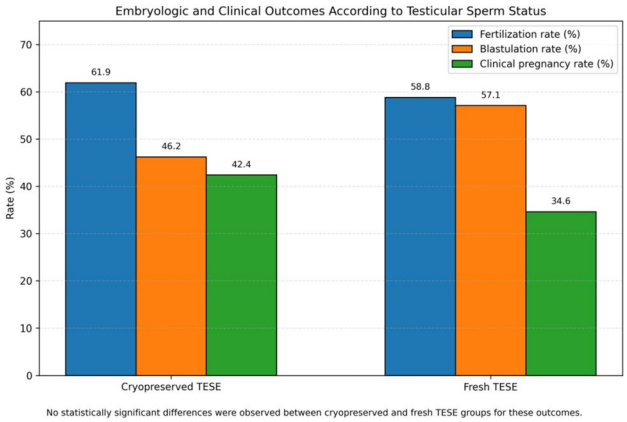
Objective: To compare embryologic and clinical outcomes of intracytoplasmic sperm injection (ICSI) cycles using fresh versus cryopreserved testicular sperm obtained by testicular sperm extraction (TESE), and to identify factors independently associated with clinical pregnancy.
Materials and Methods: This retrospective cohort study included 92 ICSI cycles using testicular sperm (cryopreserved TESE: n=66; fresh TESE: n=26). Baseline demographic and cycle characteristics, embryologic outcomes, and clinical pregnancy rates (CPR) were compared. Factors associated with clinical pregnancy were evaluated using univariate and multivariable logistic regression analyses.
Results: Female and male ages were significantly younger in the cryopreserved group compared to the fresh TESE group (28.4±4.2 vs. 31.4±5.6 years, p=0.005; 32.6±4.4 vs. 36.3±7.1 years, p=0.014), and infertility duration was shorter (4.4±2.7 vs. 6.2±4.2 years, p=0.045). Retrieved oocytes (10.9±6.9 vs. 8.5±4.9; p=0.091), metaphase II oocytes (8.6±5.5 vs. 7.3±4.4; p=0.273), fertilization rates (61.9±50.7% vs. 58.8±26.4%; p=0.765), blastulation rates (46.2±29.4% vs. 57.1±24.2%; p=0.307), and number of good-quality cleavage embryos were comparable between groups. CPR was similar between cryopreserved and fresh TESE sperm (42.4% vs. 34.6%; p=0.638). In multivariable analysis, longer infertility duration was independently associated with decreased odds of clinical pregnancy (OR 0.83, 95% CI 0.70–0.98; p=0.030), whereas a higher number of transferred embryos was associated with increased odds (OR 3.75, 95% CI 1.14–12.33; p=0.030). Sperm cryopreservation status was not associated with clinical pregnancy.
Conclusion: Cryopreserved testicular sperm yields embryologic and clinical outcomes comparable to fresh TESE sperm, indicating that cryopreservation is an effective strategy without compromising treatment success. Infertility duration and number of embryos transferred were independent predictors of clinical pregnancy.

Keywords: Testicular sperm extraction, sperm cryopreservation, intracytoplasmic sperm injection

Fig OP-18-1. Comparison of embryologic outcomes and clinical pregnancy rates between cryopreserved and fresh testicular sperm.



OP-19. Abstract withdrawn

OP-20. Association of clinical varicocele grade and scrotal Doppler ultrasonography findings with the systemic immune-inflammation index

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Objective: To evaluate associations of clinical varicocele grade and scrotal Doppler ultrasonography (SDUS) parameters—maximum venous diameter and reflux duration—with the systemic immune-inflammation index (SII) and other hematological inflammatory indices.
Materials and Methods: We included 59 patients with clinical varicocele. Age, body mass index, clinical grade, maximum venous diameter, reflux duration, and complete blood count parameters were recorded. SII, NLR, PLR, and SIRI were calculated. Grade groups were compared using the Kruskal–Wallis test with Bonferroni-adjusted pairwise comparisons. Correlations between SDUS parameters and inflammatory indices were assessed using Spearman analysis.
Results: Eleven patients (18.6%) had Grade 1, 15 (25.4%) Grade 2, and 33 (55.9%) Grade 3 varicocele. Median maximum venous diameters were 3.00 (2.80–3.05), 3.60 (3.35–3.85), and 3.80 (3.40–4.70) mm, respectively (p<0.001); reflux durations did not differ significantly (p=0.079). Median SII values were 312.48 (205.09–395.66), 446.35 (343.05–613.57), and 457.90 (368.63– 634.95), respectively (p=0.028). SII was significantly higher in Grade 3 than Grade 1 after Bonferroni adjustment (p=0.030); other pairwise comparisons were nonsignificant. NLR (p=0.080), PLR (p=0.068), and SIRI (p=0.279) did not differ among grades. Neither SDUS parameter correlated significantly with any inflammatory index (all p>0.05).
Discussion: Inflammation is implicated in varicocele pathophysiology. The increase in SII with clinical grade suggests that systemic immune-inflammatory burden may be associated with varicocele severity. However, the absence of correlations with venous diameter or reflux duration suggests that systemic inflammation may not directly reflect SDUS-derived hemodynamic parameters.
Conclusion: SII was higher in Grade 3 than Grade 1 varicocele, supporting its potential as an inflammatory marker of clinical severity. However, no inflammatory index was associated with maximum venous diameter or reflux duration. Larger studies are needed to validate these findings and clarify the clinical utility of SII.

Keywords: Varicocele, systemic immune-inflammation index, inflammation, scrotal Doppler ultrasonography

Tab OP-20-1. Clinical, scrotal Doppler ultrasonography, and inflammatory findings according to clinical varicocele grade

Variable	Grade 1 (n=11)	Grade 2 (n=15)	Grade 3 (n=33)	p	Post-hoc comparisons, p*
Age, years	29.0 (26–32)	28.0 (25–32)	28.0 (20–31)	0.471	
BMI, kg/m²	24.38 (22.20–25.61)	22.65 (22.32–23.86)	23.88 (22.79–25.95)	0.096	
Maximum venous diameter, mm	3.00 (2.80–3.05)	3.60 (3.35–3.85)	3.80 (3.40–4.70)	<0.001	Grade 1–Grade 2: 0.003; Grade 1–Grade 3: <0.001; Grade 2–Grade 3: 0.429
Reflux duration, s	1.00 (0.75–1.30)	1.40 (1.00–1.50)	1.40 (1.00–1.70)	0.079	
SII	312.48 (205.09–395.66)	446.35 (343.05–613.57)	457.90 (368.63–634.95)	0.028	Grade 1–Grade 2: 0.100; Grade 1–Grade 3: 0.030; Grade 2–Grade 3: 1.000
NLR	1.24 (1.07–1.68)	1.80 (1.41–2.76)	1.69 (1.38–1.98)	0.080	
PLR	96.90 (64.90–107.29)	112.18 (90.97–156.85)	114.68 (92.61–138.89)	0.068	
SIRI	0.50 (0.39–0.91)	0.72 (0.59–1.15)	0.74 (0.57–1.09)	0.279	

Tab OP-20-2. Correlations between scrotal Doppler ultrasonography parameters and inflammatory indices

SDUS parameter	Inflammatory index	Spearman's ρ	p
Maximum venous diameter	SII	0.090	0.499
	NLR	0.074	0.576
	PLR	0.043	0.748
	SIRI	0.108	0.417
Reflux duration	SII	0.064	0.628
	NLR	0.149	0.262
	PLR	0.033	0.802
	SIRI	0.054	0.687

Data are presented as median (IQR). Overall group comparisons were performed using the Kruskal–Wallis test. Pairwise comparisons were performed with Bonferroni adjustment. Correlations were assessed using Spearman's rank correlation analysis. BMI: body mass index; SDUS: scrotal Doppler ultrasonography; SII: systemic immune-inflammation index; NLR: neutrophil-to-lymphocyte ratio; PLR: platelet-to-lymphocyte ratio; SIRI: systemic inflammation response index; ρ: Spearman's correlation coefficient.

OP-21. Pre-washing Catheter With a Culture Medium Before Intrauterine Insemination may improve the pregnancy outcomes

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Objective: To evaluate the impact of washing the catheter with culture medium before intrauterine insemination on pregnancy outcomes
Materials and Methods: This randomized controlled trial randomized patients undergoing ovarian stimulation and intrauterine insemination into two groups on the day of trigger. In the study group, the insemination catheters were washed with culture medium before the procedure; in the control group, they were used directly for semen injection without washing. Pregnancy test results after insemination and clinical pregnancy outcomes assessed by ultrasound were recorded and statistically compared between the groups.

Results: A total of 385 patients were included, 192 in the study group and 193 in the control group. No differences in demographic parameters were observed between the groups. Higher levels of estrogen on the triggering day and thicker endometrium were found in the control group that did not undergo washing with the medium compared to the study group; however, these differences did not reach statistical significance (p>0.05)(Table). Although a higher hCG test positivity rate (19% vs. 14%) and a higher clinical pregnancy rate (22% vs. 20%) were observed in the study group compared to the control group, these differences did not reach statistical significance (p=0.14 and p=0.36, respectively).
Discussion: In our study, washing the catheter with culture medium before intrauterine insemination may slightly improve pregnancy rates. Some endotoxins that may be present in the catheter can have negative effects on the sperm. Additionally, the inability to deliver inadequate sperm concentration into the intrauterine cavity due to potential adhesion of sperm in an unwashed catheter can also be a significant issue. We believe that removing toxic elements related to the sterilization technique or the packaging process could have positive effects on sperm motility and viability.
Conclusion: In conclusion, washing the catheter with culture medium prior to intrauterine insemination has resulted in higher pregnancy rates compared to the control group.

Keywords: catheter, infertility, intrauterine insemination

Tab OP-21-1. Demographic characteristics and cycle outcomes of the patients

	Catheter Washing (-)	Catheter Washing (+)	p
Female Age	29,54±4,74	28,66±4,50	0.06
Female BMI	26,10±6,21	25,6±4,91	0.38
Duration of infertility	2 (0–12)	2(0–15)	0.59
Day 3 AFC	13 (2–29)	12 (1–27)	0.82
Total stimulation days	9 (4–19)	0.72	
Total dose of gonadotropins	675	725	0.46
E2 levels on the day of trigger	276 (35–900)	132 (22–413)	0.40
Follicle numbers >16 mm on the day of trigger	1 (1–5)	0.80	
Endometrial thickness on the day of trigger	8,80 (4–76)	8,65 (0–19)	0.32
TMSC(total motile sperm counts)	16 (1–75)	20 (2–85)	0.001
hCG positivity rate(%)	19.1	22.9	0.36
Clinical pregnancy rate (%)	14.5	20.8	0.14

OP-22. Association of Pentoxifylline-Induced Sperm Motility with Reproductive Outcomes in Men with Non-Obstructive Azoospermia Undergoing TESE-ICSI

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Introduction: Pentoxifylline is widely used to induce motility in immotile testicular spermatozoa from men with non-obstructive azoospermia (NOA), facilitating selection for intracytoplasmic sperm injection (ICSI), but its impact on reproductive outcomes remains unclear. This study evaluated the association between pentoxifylline-induced motility and reproductive outcomes in NOA men undergoing TESE-ICSI.
Materials and Methods: This retrospective cohort study included 65 TESE-ICSI cycles performed between January 2015 and December 2025 in couples with NOA-related male infertility and successful sperm retrieval. Men with abnormal karyotypes or major comorbidities and women with infertility factors were excluded. All underwent GnRH antagonist stimulation and fresh Day-3 transfer of good-quality embryos. Pentoxifylline was used when spermatozoa were initially immotile, and patients were grouped by presence or absence of induced motility. Fertilization, clinical pregnancy, and live birth rates were compared, and logistic regression identified predictors of clinical pregnancy.
Results: Pentoxifylline-induced motility was observed in 45 of 65 cycles (69.2%) and absent in 20 cycles (30.8%). Motility-positive men were significantly younger than motility-negative men (34.0±5.3 vs. 37.8±5.1 years, p=0.005), as were female partners (29.4±5.3 vs. 34.8±5.6 years, p<0.001). Serum FSH, total testosterone, and Johnson scores were comparable. Fertilization rates were similar (51.9±24.5% vs. 61.8±32.8%, p=0.238). Clinical pregnancy occurred in 14/45 (31.1%) and 5/20 (25.0%) cycles (p=0.425), and live birth in 9/45 (20.0%) and 3/20 (15.0%) cycles (p=0.741). Univariable regression showed no significant association between clinical pregnancy and induced motility, male age, female age, serum FSH, testosterone, Johnson score, or fertilization rate. Multivariable analysis adjusted for female age and Johnson score confirmed that motility was not an independent predictor of clinical pregnancy (adjusted OR 1.64, 95% CI 0.40–6.84, p=0.494).
Conclusion: Pentoxifylline-induced sperm motility was not associated with fertilization, clinical pregnancy, or live birth in NOA men undergoing TESE-ICSI. Pentoxifylline remains a useful aid for sperm selection, but motility induction alone does not appear to predict reproductive success.

Keywords: Non-obstructive azoospermia, Testicular sperm extraction, Intracytoplasmic sperm injection, Pentoxifylline

OP-23. Abstract withdrawn

OP-24. The effect of a sequential IVM system using cAMP modulators, granulosa cell-conditioned medium, and calcium ionophore on oocyte maturation and embryo development in a mouse model of PCOS

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Objective: Polycystic ovary syndrome (PCOS) can affect oocyte quality and embryo developmental potential. This study evaluated a sequential in vitro maturation (IVM) system combining cAMP modulators, granulosa cell-conditioned medium (GCCM), and calcium ionophore to determine whether this approach could improve oocyte maturation and embryo development in a mouse model of PCOS.
Materials and Methods: PCOS was induced in NMRI mice using letrozole. Germinal vesicle (GV) oocytes from normal and PCOS mice were allocated to six IVM conditions: Normal-B, PCOS-B, PCOS-FI, PCOS-FI-G, PCOS-FI-B-CI, and PCOS-FI-G-CI. FI consisted of forskolin and IBMX and was applied during the first 2 h.

GCCM was used during the subsequent 6 h in the GCCM groups, whereas basal medium was used in the other groups. In the CI groups, calcium ionophore was added during the final 14 h after oocytes reached the M1 stage. Total IVM was 22 h. MII oocytes were fertilized with capacitated mouse sperm, and MII, 2PN, cleavage, and blastocyst rates were evaluated.
Results: PCOS-B showed lower MII, 2PN, cleavage, and blastocyst rates than Normal-B. The PCOS-FI-G-CI group showed the highest maturation and embryo-development rates among the PCOS groups, with values comparable to those of Normal-B: 92.50% MII, 94.57% 2PN, 71.50% cleavage, and 39.93% blastocyst. Significant differences were observed among all six groups for all outcomes (P<0.001).
Discussion: The sequential combination of cAMP modulators, GCCM, and calcium ionophore improved developmental outcomes of GV oocytes from PCOS mice. The highest values in PCOS-FI-G-CI were comparable to those in Normal-B, suggesting that supportive factors may create a more favorable culture environment for PCOS-derived oocytes in this model.
Conclusion: This sequential IVM system improved oocyte maturation and early embryo development in PCOS mice, suggesting that combining cAMP modulation, granulosa cell-derived support, and calcium-dependent signalling may improve IVM outcomes in PCOS.

Keywords: PCOS, IVM, cAMP modulators, granulosa cell-conditioned medium

Tab OP-24-1. Outcomes of oocyte maturation and embryo development in six experimental groups. Values are mean ± SD.

Group	MII (%)	2PN (%)	Cleavage (%)	Blastocyst (%)
Normal-B	90.83 ± 3.82	94.47 ± 0.21	67.93 ± 2.80	38.50 ± 1.87
PCOS-B	67.50 ± 2.50	66.67 ± 1.25	46.07 ± 5.88	23.10 ± 8.02
PCOS-FI	72.50 ± 2.50	72.37 ± 0.95	50.63 ± 4.99	24.77 ± 2.66
PCOS-FI-G	75.83 ± 1.44	76.93 ± 0.40	55.67 ± 3.13	25.57 ± 2.79
PCOS-FI-B-CI	82.50 ± 2.50	84.83 ± 0.45	61.87 ± 4.31	30.77 ± 1.19
PCOS-FI-G-CI	92.50 ± 2.50	94.57 ± 0.15	71.50 ± 4.35	39.93 ± 2.40

OP-25. Clinical Pregnancy Outcomes of Planned Day 3 versus Day 5 Transfer Strategies Stratified by Zygote Number: A Quasi-Random Cohort Analysis of 1116 Cycles

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Objective: We evaluated whether the "at least perform a transfer" approach with few zygotes raises clinical pregnancy rates, and how many day3 (D3) transfers occurred in cycles that would arrest by day5 (D5).
Materials and Methods: Secondary analysis of a single-center cohort (Dirican et al., Arch Gynecol Obstet,2022) with transfer day set by oocyte retrieval day, rendering allocation quasi-random. 1116 first fresh IVF cycles (584 planned D3; 532 planned D5) were analyzed; the primary outcome was clinical pregnancy per planned strategy, with all 70 D5 cycles without transfer retained. Counterfactual arrest in D3 cycles was estimated by g-computation standardized by zygote number (5000-iteration stratified bootstrap), with arrested-cycle pregnancy probability varied 0–30%.
Results: With <=5 zygotes, clinical pregnancy was 25.5% (D3) versus 26.1% (D5) (adjusted OR for D5 0.79;95%CI 0.57–1.10; P = 0.16); with >=6 zygotes, 25.7% versus 48.3% (OR 3.22;95%CI 1.80–5.78; P <0.001), a 22.7-percentage-point (pp) difference (~1 more pregnancy per 4.4 D5 strategies). Interaction was significant (continuous χ^2=10.93; P=0.004; binary χ^2=15.24; P<0.001), the D5 advantage rising from ≈−4 pp at one zygote to +27 pp at ten. Of 471 D3 cycles with <=5 zygotes, 104 (22.1%) were predicted not to reach blastocyst; excluding them left rates similar (D5 31.3%;D3 32.7%;−1.3 pp;95% CI-8.6 to +5.7), while at >=6 zygotes the difference remained +23.6 pp (D5 50.3%;D3 26.8%;95% CI+11.7 to +35.4).
Discussion: In 22.1% of D3 cycles with <=5 zygotes, no transferred embryo was to reach blastocyst, so D3 transfer may alter where failure appears rather than embryo fate. These counterfactual estimates are unverifiable at cycle level, equivalence was not tested, and live birth data were unavailable with more frequent cryopreservation after D3.
Conclusion: D3 was not superior in any stratum, and the assumption that it preserves pregnancy chances at low zygote numbers was not supported. D5 was associated with markedly higher rates at >=6 zygotes, so routine D3 transfer by low zygote number alone is not justified.

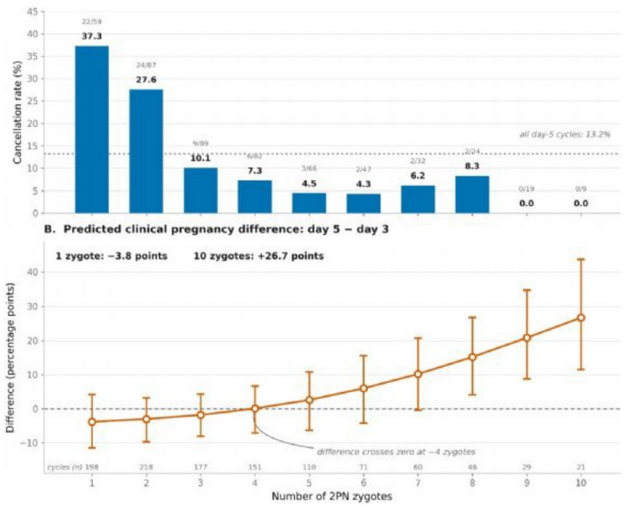
Keywords: avoidable transfer, blastocyst transfer, cleavage-stage transfer, extended culture

Tab OP-25-1. Clinical pregnancy outcomes of the planned transfer strategy by zygote stratum, with the latent-arrest counterfactual decomposition * Adjusted odds ratio for day 5 versus day 3 (reference), adjusted for female age, previous IVF failures, baseline FSH, antral follicle count, cumulus–oocyte complexes, mature oocytes and 2PN zygote count. † Implied subgroup after removing the expected (counterfactual) arrest fraction; n values are expected counts derived from zygote-specific cancellation rates, not observed integers. ‡ Day-3 cycles that would have been cancelled in extended culture under the primary assumption ($\varphi = 0$) but instead proceeded to cleavage-stage transfer. Modelled expectations, not observed individual outcomes. § Bootstrap 95% confidence intervals from 5000 stratified replications. The residual difference is a counterfactual decomposition, not an identified causal treatment effect. CPR, clinical pregnancy rate; D3, day 3; D5, day 5; ITT, intention-to-treat; OR, odds ratio; CI, confidence interval; pp, percentage points.

Stratum	Group	n	Pregnancies (n)	CPR (%)	Adjusted OR (95% CI)*	P
<=5 zygotes	D3 (all)	471	120	25.5	1.00 (ref)	—
	D5 ITT	383	100	26.1	0.79 (0.57–1.10)	0.16
	D5 per-protocol	319	100	31.3	1.00 (0.72–1.40)	0.99
	D3 progressable (implied)†	≈367.1	120	32.7	—	
	Estimated futile D3 transfers‡	≈103.9 (22.1%)	0	—		

Stratum	Group	n	Pregnancies (n)	CPR (%)	Adjusted OR (95% CI)*	P
	Residual difference (D5 per-protocol - D3 progressable)§				−1.3 pp (95% CI −8.6 to +5.7)	
>=6 zygotes	D3 (all)	113	29	25.7	1.00 (ref)	—
	D5 ITT	149	72	48.3	3.22 (1.80–5.78)	<0.001
	D5 per-protocol	143	72	50.3	3.64 (2.00–6.61)	<0.001
	D3 progressable (implied)†	≈108.4	29	26.8	—	
	Estimated futile D3 transfers‡	≈4.6 (4.1%)	0	—		
	Residual difference (D5 per-protocol - D3 progressable)§				+23.6 pp (95% CI +11.7 to +35.4)	
Overall	D3 (all)	584	149	25.5	1.00 (ref)	—
	D5 ITT	532	172	32.3	1.21 (0.92–1.58)	0.17
	D5 per-protocol	462	172	37.2	1.49 (1.13–1.96)	0.005
	D3 progressable (implied)†	≈475.5	149	31.3	—	
	Estimated futile D3 transfers‡	≈108.5 (18.6%)	0	—		
	Residual difference (D5 per-protocol - D3 progressable)§				+5.9 pp (95% CI −0.6 to +12.0)	

Fig OP-25-1. Observed cancellation rate in extended culture (no transferable blastocyst). Points are marginally standardised estimates; bars are 2000-replication bootstrap 95% CI. Interaction significant: likelihood-ratio $X^2 = 10.93$, df = 2, P = 0.004.



OP-26. Metabolomic profiling of embryo culture media in relation to blastocyst development and implantation outcomes

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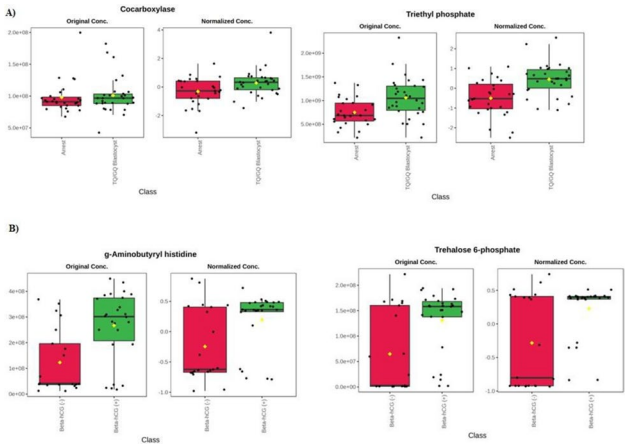
Objective: To determine whether metabolomic profiles of embryo culture media predict blastocyst developmental competence and implantation success in IVF cycles.
Materials and Methods: This prospective multicentre study analysed 57 Day-3 embryo culture media samples from embryos that developed into top/good-quality blastocysts (n=30) or arrested (n=27), and 47 Day-5 samples from transferred blastocysts with known β-hCG outcomes. Women aged <38 years with BMI <30 kg/m² and normal uterine evaluation, and male partners with sperm concentrations ≥5 million/mL, were included. Blastocysts were graded according to Gardner's criteria. Top/good-quality blastocysts were defined as expansion grade ≥4 with inner cell mass and trophectoderm grades A/B, including 3AA. Metabolites were analysed using untargeted HR MS (LC-MS/MS). Groups were compared according to blastocyst development and β-hCG outcome. Metabolomic data analysis and pathway enrichment analysis were performed using MetaboAnalyst 6.0
Results: In Day-3 media, cocarboxylase (thiamine diphosphate) levels were lower in embryos that arrested than in those reaching the top/good-quality blastocyst stage ($p<0.05$), and thiamine metabolism was altered in the arrest group. In Day-5 media from transferred top/good-quality blastocysts, β-hCG-positive cycles had lower L-arginine and Gly-Leu levels and higher trehalose-6-phosphate and γ-aminobutyrylhistidine levels than β-hCG-negative cycles (all $p<0.05$). Arginine biosynthesis and arginine/proline metabolism were significantly altered. These associations remained significant after multiple-comparison correction.
Discussion: The modest sample size and possible centre-specific differences in culture conditions may limit generalisability. Larger prospective studies with standardised culture conditions are required before clinical application.
Conclusion: Thiamine- and arginine-related metabolic profiles in embryo culture media may provide non-invasive biomarkers of blastocyst development and implantation success and may complement conventional morphological assessment.

Keywords: Embryo Morphology, Implantation, IVF, LC-MS/MS

Fig OP-26-1. Metabolite concentrations in Day-3 and Day-5 embryo culture media according to developmental and β-hCG outcomes. (A) Cocarboxylase and triethyl phosphate concentrations in Day-3 culture media from embryos that arrested or subsequently developed into top/good-quality (TQ/GQ) blastocysts.



OP-27. Cytoplasmic Strings Beyond Gardner Blastocyst Grading: Embryo-Specific and Sibling Cohort-Level Associations With Pregnancy Following the First Frozen-Thawed Single Blastocyst Transfer

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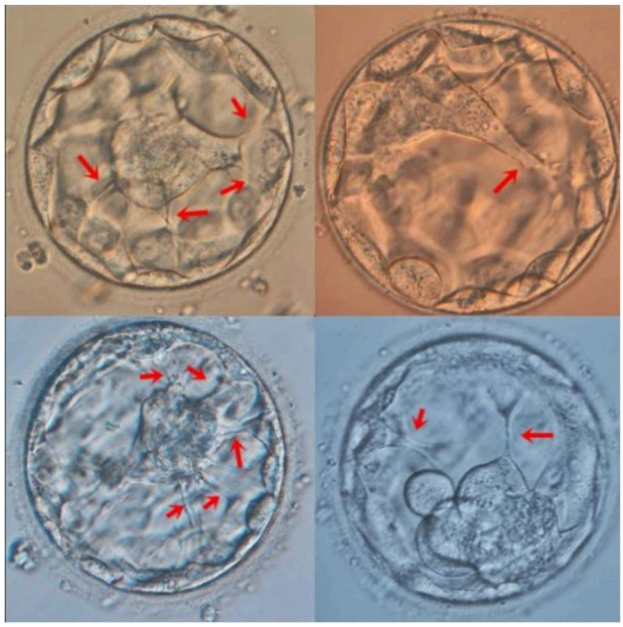
Objective: Cytoplasmic strings (CS) have been associated with blastocyst development, morphology and improved clinical outcomes. Whether they represent an embryo-specific feature or a cohort-level marker of sibling blastocyst competence remains unclear. This study investigated whether sibling-blastocyst CS prevalence was independently associated with pregnancy after the first single frozen embryo transfer (FET). Secondary objectives were to evaluate the independent effect of CS in the transferred blastocyst and whether this association differed by transfer day or Gardner grade.
Materials and Methods: This retrospective cohort study included assisted reproductive technology cycles performed at Bursa Uludağ University ART Center (2023–2026). Eligible cycles had at least one cryopreserved blastocyst and a subsequent first single-blastocyst FET. Overall, 612 fresh-cycle–first-FET cases were analysed. CS status was assessed from routine static blastocyst images. Transferred-blastocyst CS was analysed separately from sibling-blastocyst CS. Transfer-excluded sibling CS proportion was calculated after excluding the transferred embryo from both numerator and denominator. Cycles with only one cryopreserved blastocyst were excluded from sibling analyses. Multivariable logistic regression adjusted for female age, transfer day and Gardner quality.
Results: Pregnancy occurred after 315/612 first FETs (51.5%). Transferred-blastocyst CS was independently associated with pregnancy after adjustment (adjusted OR 2.33, 95% CI 1.57–3.46; p<0.001). Pregnancy rates were higher for CS-positive than CS- negative blastocysts after day-5 transfer (64.1% vs 42.6%; p<0.001) and day-6 transfer (58.6% vs 32.8%; p=0.004), and in good-quality (67.9% vs 43.2%; p<0.001) and moderate-quality blastocysts (53.4% vs 36.4%; p=0.036). No interaction was found between CS and transfer day or Gardner quality. Sibling CS proportion was not independently associated with pregnancy.
Conclusion: CS provided prognostic information at the embryo but not cohort level. Transferred-blastocyst CS was independently associated with pregnancy beyond Gardner morphology, supporting CS as an embryo-specific morphological feature. Prospective studies with standardized image assessment are needed before routine clinical use in embryo selection.

Keywords: blastocyst morphology, cytoplasmic str

Fig OP-27-1. Representative images of blastocysts exhibiting cytoplasmic strings



OP-28. Effect of Reducing Extra-Incubator Time During Embryo Transfer on Pregnancy Outcomes: A Pilot Study

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Objective: Embryos are transiently exposed to non-incubator conditions during embryo transfer, where fluctuations in temperature, pH, and osmolality may theoretically compromise embryo viability and implantation potential. This study investigated whether minimizing extra-incubator time during frozen embryo transfer improves reproductive outcomes.
Materials and Methods: This retrospective, single-centre, pilot study included women aged 18–39 years undergoing frozen single blastocyst transfer, with at least one good-quality Day 5 or Day 6 blastocyst (≥3BB), endometrial thickness ≥7 mm, and a normal uterine cavity. Patients received either the standard embryo transfer protocol or a reduced extra-incubator time protocol, in which a portable incubator was used for embryo transport and loading was performed immediately

before transfer within a laminar flow cabinet in the transfer room. The primary outcome was clinical pregnancy, defined by a gestational sac with fetal cardiac activity on ultrasonography; secondary outcomes were biochemical pregnancy, ongoing pregnancy, miscarriage, and live birth rates.
Results: A total of 470 patients were included, 259 in the standard protocol group and 211 in the reduced extra-incubator time group. Baseline demographic and clinical characteristics were comparable between groups ($p > 0.05$ for all). The intervention shortened the loading-to-transfer interval from 3–4 minutes to approximately 30 seconds (0.5 ± 0.1 vs. 3.8 ± 0.9 minutes, $p < 0.001$, independent samples t-test). The clinical pregnancy rate was 61.0% (158/259) in the standard group and 57.0% (120/211) in the intervention group, a difference that was not statistically significant ($p = 0.365$, chi-square test). Ongoing pregnancy rates did not differ significantly between the groups, and no procedure-related complications were reported in either group.
Conclusion: These findings suggest that minimising extra-incubator time alone, within the range tested, may not be sufficient to enhance reproductive outcomes in unselected patient populations. Larger multicenter randomised trials are warranted to determine whether specific patient subgroups may benefit from reduced extra-incubator time.

Keywords: Embryo transfer, Extra-incubator time, Frozen embryo transfer, Pregnancy outcomes

OP-29. One-step fast warming accelerates blastocyst re-expansion and improves clinical pregnancy outcomes: a propensity score-matched retrospective cohort study

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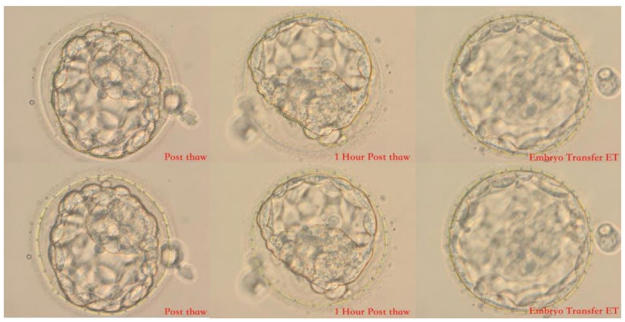
Objective: To compare clinical outcomes and blastocyst recovery kinetics between one-step fast warming and conventional multi-step warming, and determine whether serial assessment of blastocyst expansion and re-expansion velocity is more sensitive than expansion status at embryo transfer.
Materials and Methods: This single-centre, retrospective, propensity score-matched cohort study included frozen embryo transfer (FET) cycles performed at Bursa Uludağ University Assisted Reproductive Technology Centre between July 2024 and July 2026. The study group comprised 180 consecutive FET cycles using one-step fast warming during 6 months. Using 1:1 propensity score matching, 180 conventional multi-step warming cycles from the preceding 2 years were selected, yielding 360 cycles. Matching was based on patient demographics, infertility aetiology and blastocyst quality according to the Gardner grading system. Blastocysts were photographed immediately after warming, 60–90 min later and at embryo transfer. Expansion was quantified at each time point, and re-expansion velocity was calculated as change in expansion divided by elapsed time.
Results: After matching, groups were comparable in patient demographics, hormonal parameters, infertility aetiology and cycle-related variables. Clinical pregnancy rate was significantly higher in the one-step fast warming group than the conventional group (56.0% versus 43.3%; p=0.029). Serial morphological assessment showed faster post-warming recovery with one-step warming. Although blastocyst expansion at embryo transfer was comparable between groups (p=0.421), expansion increase per minute was significantly greater in the one-step group (p=0.013), indicating a faster recovery trajectory despite similar final expansion.
Conclusion: One-step fast warming was associated with faster blastocyst re-expansion and higher clinical pregnancy rates than conventional multi-step warming. Similar expansion at embryo transfer despite different re-expansion velocities suggests that a single pre-transfer assessment may not fully reflect post-warming recovery. Serial re-expansion velocity may represent a useful morphokinetic marker of blastocyst competence. Prospective multicentre studies are needed to validate these findings and determine clinically relevant velocity thresholds.

Keywords: blastocyst warming, re-expansion velocity, ultra fast warming

Fig OP-29-1. Serial assessment of blastocyst re-expansion following warming



OP-30. Is High Oocyte Degeneration a Reproducible Patient Characteristic Across Consecutive ICSI Cycles?

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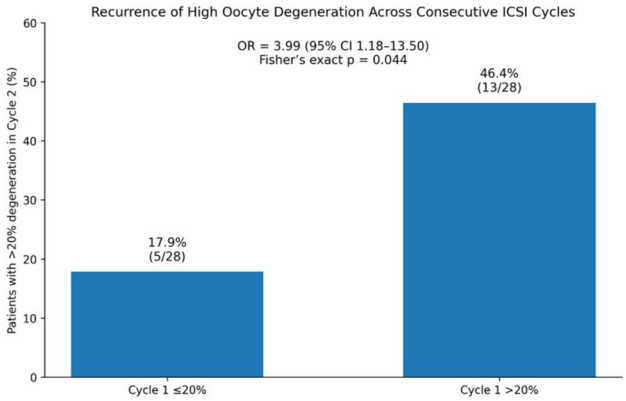
Objective: Oocyte degeneration during or after intracytoplasmic sperm injection (ICSI) is a common laboratory finding. Although oocyte-related and procedural factors have been associated with degeneration, it remains unclear whether patients with a high degeneration rate in one cycle are more likely to experience the same finding subsequently. This study evaluated whether high oocyte degeneration is reproducible across consecutive ICSI cycles.
Materials and Methods: This retrospective single-centre study included 133 ICSI cycles from 60 patients treated at Okan University Hospital IVF Center. Patients with endometriosis were excluded. Retrieved, metaphase II (MII), fertilized, blastocyst, and degenerated oocyte numbers were recorded. Degeneration rate was calculated as degenerated oocytes divided by MII oocytes. Degeneration was evaluated continuously, and >20% was defined as high degeneration based on previous literature. Reproducibility was assessed by comparing first and second cycles of patients with at least two cycles.
Results: A total of 1,293 oocytes were retrieved; 1,042 were MII and 194 degenerated, yielding a pooled degeneration rate of 18.6%. Fifty-four of 133 cycles had >20% degeneration, and 56 patients had at least two cycles. First- and second-cycle degeneration rates showed a weak, nonsignificant correlation (Spearman's ρ=0.220, p=0.103). However, high degeneration in the first cycle was significantly associated with high degeneration in the second cycle (OR=3.99, 95% CI 1.18–13.50; Fisher's exact p=0.044) (Figure OP-30-1).

Discussion: Although rates varied between cycles, patients with >20% degeneration were more likely to show high degeneration again, suggesting a persistent tendency in a subgroup.
Conclusion: High oocyte degeneration during ICSI may be a reproducible characteristic. A rate >20% may identify patients at increased risk of recurrence. Larger studies evaluating patient, stimulation, oocyte, and laboratory factors are warranted.

Keywords: Oocyte degeneration, fragile oocyte, repeated ICSI cycles, assisted reproductive technology

Fig OP-30-1. Recurrence of high oocyte degeneration across consecutive ICSI cycles. Patients with >20% degeneration in the first cycle more often had >20% degeneration in the second cycle (46.4% versus 17.9%; OR 3.99, 95% CI 1.18–13.50; Fisher's exact p=0.044).



OP-31. Assessment of Changes in Blastocyst Competence Before and After Cryopreservation Using AI-Based Scoring

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Materials and Methods: This single-centre retrospective cohort study included autologous cycles that underwent frozen single blastocyst transfer at Bahceci Health Group Izmir IVF centre between January 2025 and December 2025. A total of 79 FSBTs were analyzed. Preimplantation genetic testing, conventional IVF and cycles involving double frozen blastocyst transfer were excluded to avoid potential confounding effects on implantation outcomes. All micrographs were captured on the blastocyst stage pre-vitrification ERICA scoring (pvEs) and blastocysts selected for transfer; a second image acquisition was performed post-warming ERICA scoring (pwEs). The primary outcome was ERICA scores (ΔERICA).
Results: The mean pre-vitrification ERICA score was 64.06 ± 14.37, compared with 54.85 ± 13.09 post-warming (p = 0.001). Pre-vitrification scores ranged from 32 to 90, whereas post-warming scores ranged from 25 to 86. The distribution of embryos across ERICA grade categories also changed significantly between the pre-vitrification and post-warming assessments (p = 0.001). Before pre-vitrification, 16.5% (n = 13) of embryos were classified as optimal and 49.4% (n = 39) as good, while 25.3% (n = 20) and 8.9% (n = 7) were classified as fair and poor, respectively. Following post-warming, the proportion of embryos classified as optimal decreased to 2.5% (n = 2) and the proportion classified as good decreased to 36.7% (n = 29). In contrast, the proportion classified as fair increased to 45.6% (n = 36), while 15.2% (n = 12) were classified as poor.
Conclusion: Cryopreservation was associated with significant reductions in ERICA scores, suggesting AI-detectable changes in biological competence after cryopreservation. However, ΔERICA was not independently associated with ongoing pregnancy, indicating that these alterations may reflect transient viability-related adaptations rather than impaired reproductive potential.

Keywords: Artificial intelligence, noninvasive embryo assessment, pre-vitrification, biological competence

Tab OP-31-1. Comparison of pre-vitrification and post-warming ERICA Scores. P: Paired sample t test; *: McNemar test

ERICA		pvEs	pwEs	p-value
ERICA Score				0.001
	Mean ± SD	64.06±14.37	54.85±13.09	
	Min-max	32–90	25–86	
ERICA Grade*				0.001
	Optimal (≥80%)	13(16.5)	2(2.5)	
	Good (≥60% and <80%)	39(49.4)	29(36.7)	
	Fair (≥40% and <60%)	20(25.3)	36(45.6)	
	Poor (<40%)	7(8.9)	12(15.2)	

OP-32. Male-Factor Infertility Impairs Embryological Efficiency Without Reducing Documented Clinical Outcomes: Analysis of 1,106 IVF/ICSI Cycles

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Objective: To determine whether male-factor infertility and its phenotypes affect laboratory efficiency and clinical outcomes in IVF/ICSI cycles compared with unexplained infertility.
Materials and Methods: This retrospective cohort included 1,106 cycles from 977 couples: 724 male-factor and 382 unexplained-infertility cycles. Couple-clustered robust standard errors accounted for repeated cycles. Adjusted negative-binomial models evaluated metaphase-II (MII) oocyte yield, fertilisation per MII oocyte, and blastocyst and usable-blastocyst formation per normally fertilised (2PN) oocyte. Clinical outcomes were analysed using known-outcome denominators and adjusted modified Poisson regression.
Results: Male-factor cycles more frequently failed to reach embryo transfer (12.2% versus 5.2%). Adjusted MII yield was marginally lower (incidence rate ratio [IRR] 0.94, 95% confidence interval [CI] 0.87–1.00; P=0.065). Fertilisation per MII (IRR 0.93, 95% CI 0.90–0.96; P<0.001), blastocyst formation per 2PN (IRR 0.89, 95% CI 0.84–0.95; P<0.001), and usable-blastocyst formation per 2PN (IRR 0.92, 95% CI 0.85–1.00; P=0.044) were reduced. Clinical pregnancy (52.2% versus 53.7%; adjusted risk ratio [aRR] 1.00), live birth (29.3% versus 26.8%; aRR 1.17), and pregnancy loss (aRR 0.86) did not differ

significantly. Fertilisation impairment was greatest in obstructive azoospermia (IRR 0.76) and non-obstructive/severe azoospermia (IRR 0.80); no phenotype showed poorer clinical outcomes.
Conclusion: Male-factor infertility causes phenotype-dependent attrition during fertilisation and blastocyst development, reducing the likelihood of transfer. Preserved outcomes among cycles with documented follow-up may reflect treatment selection and conditioning on transfer. Counselling and performance assessment should incorporate sequential laboratory endpoints and male-factor phenotype rather than pregnancy or live-birth rates alone. Declaration of Conflict of Interest: The authors declare no conflicts of interest. Funding: No external funding was received for this study.

Keywords: Male-factor infertility, ICSI, fertilisation, blastocyst development

OP-33. Does the Timing of LH Addition Matter? Association Between LH Initiation Day and Live Birth in GnRH Antagonist IVF/ICSI Cycles

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Objective: The optimal timing of luteinizing hormone (LH) supplementation during ovarian stimulation remains uncertain. We evaluated whether LH initiation day was associated with live birth in GnRH antagonist IVF/ICSI cycles receiving exogenous LH activity.
Materials and Methods: This single-center retrospective cohort included 596 GnRH antagonist IVF/ICSI cycles performed between December 2022 and February 2026. The primary analysis included 328 LH-treated cycles; 268 untreated cycles assessed treatment-selection bias. LH initiation timing and clinical, reproductive, and POSEIDON characteristics were compared according to live-birth outcome. POSEIDON-stratified analyses were supportive because LH was preferentially prescribed to women with poorer ovarian prognosis. Analyses used independent-samples t tests, Pearson's chi-square or Fisher's exact tests; $p<0.05$ was significant.
Results: POSEIDON Groups 3–4 comprised 53.4% of LH-treated versus 22.0% of untreated cycles (p=0.01). Among 328 LH-treated cycles, 58 resulted in live birth. LH was initiated significantly earlier in live-birth cycles than in those without live birth (stimulation day 5.58±1.47 vs 6.71±1.83), a mean difference of 1.13 days (p=0.01; Table OP-33-1). Live-birth rates were comparable between LH-treated and untreated patients within POSEIDON Group 3 (17.7% vs 13.5%; p=0.795) and Group 4 (16.5% vs 18.2%; p=1.000). Successful cycles also showed more favorable ovarian-reserve, oocyte, embryo, and endometrial characteristics.
Conclusion: In LH-treated GnRH antagonist cycles, live birth was associated with LH initiation approximately one stimulation day earlier, suggesting a potentially relevant timing window. However, earlier initiation was not established as an independent predictor, and residual confounding remains possible. LH timing should therefore be individualized according to ovarian reserve, age, previous response, and follicular dynamics. Prospective POSEIDON-stratified studies are needed to determine whether earlier LH exposure independently improves live-birth outcomes.

Keywords: GnRH antagonist, IVF/ICSI, live birth, luteinizing hormone

Tab OP-33-1. Key study findings: LH initiation timing, reproductive outcomes, and POSEIDON analyses

Analysis / outcome	LH-treated / Live birth	No LH / No live birth	Effect / comparison	p value
Overall cohort	328/596 (55.0%)	268/596 (45.0%)	Total cycles: 596	—
Biochemical pregnancy, LH-treated	26.2%	—		
Clinical pregnancy, LH-treated	22.6%	—		
Live birth, LH-treated	58/328 (17.7%)	—		
LH initiation day, mean ± SD	5.58 ± 1.47 (live birth, n=58)	6.71 ± 1.83 (no live birth, n=270)	1.13 days earlier in live-birth cycles	0.01
POSEIDON Groups 3–4, overall cohort	175/328 (53.4%)	59/268 (22.0%)	LH-treated vs no LH	0.01
Live birth, POSEIDON Group 3	17/96 (17.7%)	5/37 (13.5%)	LH-treated vs no LH	0.795
Live birth, POSEIDON Group 4	13/79 (16.5%)	4/22 (18.2%)	LH-treated vs no LH	1.000

OP-34. Fixed Versus Flexible Progestin-Primed Ovarian Stimulation in Low-Prognosis Patients: A POSEIDON-Stratified Cohort Study

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Objective: To compare the efficacy of fixed versus flexible progestin-primed ovarian stimulation (PPOS) protocols in low-prognosis patients undergoing oocyte cryopreservation, stratified by POSEIDON criteria.
Materials and Methods: This retrospective cohort study included 153 women with diminished ovarian reserve undergoing oocyte cryopreservation via PPOS (2018–2024), classified into POSEIDON Group 3 (age <35 years; n=62) or Group 4 (age ≥35 years; n=91). Medroxyprogesterone acetate (MPA) was initiated concurrently with gonadotropins on cycle day 2–3 (fixed) or upon leading follicle reaching ≥14 mm/estradiol >200 pg/mL (flexible). Primary outcomes were numbers of retrieved, metaphase II (MII), and morphologically good-quality oocytes; premature LH surge was the secondary outcome.
Results: Overall, 90 patients underwent fixed and 63 flexible PPOS. Flexible PPOS was associated with higher premature LH surge rates (19.0% vs. 6.7%; p=0.023) and significantly lower follicular output rate (FORT) and follicle-to-oocyte index (FOI). In POSEIDON Group 3, retrieved,

MII, and good-quality oocyte yields, as well as premature LH surges, were comparable between protocols. Conversely, in POSEIDON Group 4, flexible PPOS yielded significantly fewer retrieved oocytes (2.9±2.2 vs. 4.4±2.2; p=0.004), MII oocytes (2.3±2.0 vs. 3.5±1.5; p=0.003), and good-quality oocytes (2.2±1.9 vs. 3.1±1.8; p=0.031). FORT (0.4±0.2 vs. 0.5±0.2; p=0.003) and FOI (0.5±0.3 vs. 0.8±0.2; p=0.001) were lower, while premature LH surge (27.3% vs. 3.4%; p=0.001) and premature ovulation (9.1% vs. 0%; p=0.045) rates were higher with flexible PPOS.
Conclusion: Optimal progestin timing depends on patient phenotype. Flexible PPOS provides comparable outcomes in younger low-prognosis patients (POSEIDON 3). However, delaying progestin in POSEIDON Group 4 substantially increases premature LH surge risk and reduces oocyte yield; fixed PPOS represents a more reliable strategy for older women with diminished ovarian reserve.

Keywords: Progestin-primed ovarian stimulation, POSEIDON classification, diminished ovarian reserve

Tab OP-34-1. Key Ovarian Stimulation Outcomes According to PPOS Protocol and POSEIDON Subgroup

Outcome	Fixed PPOS	Flexible PPOS	p value
Overall cohort	n=90	n=63	
Retrieved oocytes, n	4.2 ± 2.6	3.4 ± 2.7	0.053
FORT	0.4 ± 0.2	0.3 ± 0.1	0.009
FOI	0.7 ± 0.2	0.5 ± 0.3	0.001
Premature LH surge, n (%)	12 (19.0)	6 (6.7)	0.023
POSEIDON Group 3	n=32	n=30	
Retrieved oocytes, n	4.1 ± 3.2	4.0 ± 3.0	0.877
MII oocytes, n	3.1 ± 2.8	3.6 ± 2.5	0.492
Premature LH surge, n (%)	4 (12.5)	3 (10.0)	0.756
POSEIDON Group 4	n=58	n=33	
Retrieved oocytes, n	4.4 ± 2.2	2.9 ± 2.2	0.004
MII oocytes, n	3.5 ± 1.5	2.3 ± 2.0	0.003
Good-quality oocytes, n	3.1 ± 1.8	2.2 ± 1.9	0.031
FOI	0.8 ± 0.2	0.5 ± 0.3	0.001
Premature LH surge, n (%)	9 (27.3)	2 (3.4)	0.001
Premature ovulation, n (%)	3 (9.1)	0 (0)	0.045

OP-35. Impact of Trigger Type and Timing on IVF Outcomes: GnRHa versus hCG versus Dual Trigger

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Objective: This study aims to evaluate the optimal trigger-to-oocyte retrieval interval by analyzing its impact on oocyte maturation and in vitro fertilization (IVF) outcomes.
Materials and Methods: This retrospective cohort study evaluated 8,561 retrieval cycles performed between 2019 and 2025 at a private clinic. Cycles were categorized into two groups based on the trigger-to-retrieval interval: Group A (36 hours; n = 8,431) and Group B (≥36.5 hours; n = 130). Subgroups were analyzed by trigger type: GnRHa, hCG, or dual trigger. The primary outcome was the number of mature (MII) oocytes. Secondary outcomes included fertilization, blastulation, pregnancy, and clinical pregnancy rates.
Results: No significant differences were observed between Group A and Group B regarding total retrieved oocytes (14.3±10.3 vs. 13.5±9.6, p=0.398) or MII oocytes (8.6±6.8 vs. 7.9±6.2, p=0.197). Subgroup analyses by trigger type similarly revealed no significant variations in total or MII counts. However, fertilization rates were significantly higher with the shorter interval (Group A) across all protocols: overall (85.08% vs. 76.81%, p<0.001), GnRHa (84.64% vs. 76.14%, p<0.001), hCG (84.79% vs. 74.89%, p<0.001), and dual trigger (86.45% vs. 80.88%, p=0.028). Conversely, overall blastulation rates were significantly higher with the longer interval (49.73% vs. 53.36%, p=0.049), a trend driven primarily by the GnRHa subgroup (49.15% vs. 54.37%, p=0.034). Neither pregnancy (69.82% vs. 66.15%, p=0.419) nor clinical pregnancy rates (55.93% vs. 59.23%, p=0.508) were affected by the interval.
Conclusion: In contrast to some literature, our findings indicate that extending the trigger-to-retrieval interval does not alter total or mature oocyte yields. While shorter intervals yield significantly higher fertilization rates, longer intervals improve blastulation rates specifically in GnRHa-triggered cycles. Final pregnancy and clinical pregnancy outcomes remain unaffected by the choice of interval duration.
Keywords: Trigger-to-retrieval interval, Oocyte maturation trigger, Fertilization rate, Blastulation rate

References: Enatsu N, et al. F S Rep. 2025.

OP-36. Does Antral Follicle Count Add Prognostic Value Beyond Low AMH? Heterogeneity of Ovarian Response in Women With Diminished Ovarian Reserve

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Objective: To determine whether antral follicle count (AFC) provides incremental prognostic value beyond age and anti-Müllerian hormone (AMH) for predicting ovarian response in women with diminished ovarian reserve.
Materials and Methods: This retrospective cohort study analyzed 80 ovarian stimulation cycles in 68 women with AMH <1.2 ng/mL (including cancelled cycles and those yielding zero oocytes). The primary outcome was retrieval of ≥4 oocytes. The prognostic value of adding AFC to age+AMH was assessed using logistic regression, likelihood-ratio testing, area under the receiver operating characteristic curve (AUC), Brier score, and bootstrap optimism correction. Outcomes were also compared between women with AFC <5 and AFC ≥5.
Results: Among all cycles, the probability of retrieving ≥4 oocytes was significantly higher in women with AFC ≥5 compared to AFC <5 (60.0% vs. 25.0%; RR 2.40, 95% CI 1.26–6.42). Retrieval of ≥3 metaphase II oocytes was also higher (72.5% vs. 37.5%; RR 1.93, 95% CI 1.23–3.68), while zero-oocyte cycles were significantly less frequent (2.5% vs. 22.5%; p=0.014). Median ovarian sensitivity was lower with AFC <5 (0.9 vs. 1.9 oocytes/1000 IU; p<0.001). In first cycles, adding AFC to age+AMH improved model fit (likelihood-ratio p=0.023):

apparent AUC increased from 0.713 to 0.780, optimism-corrected AUC from 0.689 to 0.750, and out-of-bag AUC from 0.661 to 0.714. At AMH 0.3 ng/mL and median age, predicted probability of retrieving ≥4 oocytes rose from ~16% (AFC=2) to 45% (AFC=7).
Conclusion: In women with AMH <1.2 ng/mL, AFC provides clinically meaningful prognostic value beyond age and AMH alone. Preserved AFC correlates with higher oocyte yield, improved ovarian sensitivity, and lower risk of zero-oocyte cycles, underscoring the need to interpret AMH and AFC concurrently.

Keywords: anti-Müllerian hormone, Antral follicle count, Diminished ovarian reserve

Tab OP-36-1. Key Ovarian Response Outcomes According to Antral Follicle Count

Outcome	AFC <5 (n=40)	AFC ≥5 (n=40)	Effect
≥4 retrieved oocytes	10/40 (25.0%)	24/40 (60.0%)	RR 2.40 (1.26–6.42)
≥5 retrieved oocytes	7/40 (17.5%)	19/40 (47.5%)	RR 2.71 (1.28–9.74)
≥3 MII oocytes	15/40 (37.5%)	29/40 (72.5%)	RR 1.93 (1.23–3.68)
Zero-oocyte cycle	9/40 (22.5%)	1/40 (2.5%)	p=0.014
Composite failure (≤3 oocytes)	30/40 (75.0%)	16/40 (40.0%)	RR 0.53 (0.32–0.84)
Ovarian sensitivity index, median	0.9	1.9	p<0.001

OP-37. Extended hCG-to-Oocyte Retrieval Interval Rescues an Apparent Empty Follicle Syndrome Cycle: A Case Report

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Objective: Standard oocyte retrieval occurs ~36 hours post-human chorionic gonadotropin (hCG) trigger, though extended intervals may improve mature oocyte yield. Empty follicle syndrome (EFS) is rare and predominantly "false," stemming from administration issues rather than a genuine absence of oocytes. We report a cycle where a prolonged hCG-to-retrieval interval successfully rescued an initial zero-yield retrieval.
Materials and Methods: A 40-year-old woman with 5 years of primary infertility underwent IVF/PGT-A due to diffuse adenomyosis, bilateral hydrosalpinx, and severe male factor infertility. Ovarian stimulation followed a progestin-primed (PPOS) protocol. Recombinant hCG was administered on day 13 when lead follicles reached 16–22 mm. Initial retrieval was scheduled 36 hours post-trigger under general anesthesia.
Results: Follicular puncture and flushing yielded zero oocytes. A concurrent urine pregnancy test was negative, but serum hCG returned at 40 hours as 140 mIU/mL, confirming trigger absorption and ruling out true administration failure or aspiration technical issues. The patient returned for a repeat retrieval 42 hours post-hCG under local anesthesia. Six oocytes were retrieved, all mature (6/6) and all fertilized (6/6). ICSI yielded three blastocysts (4AA, 4AB, 4BB), with PGT-A identifying one euploid embryo.
Conclusion: A delayed repeat retrieval at 42 hours post-hCG rescued an initially empty aspiration, producing excellent embryologic outcomes in a patient with suspected false EFS or delayed cumulus-oocyte complex detachment. While extended intervals increase mature oocyte yields, evidence beyond 41 hours remains minimal. Intentionally delaying repeat retrieval following serum hCG confirmation warrants further study in false EFS cases.

Keywords: empty follicle syndrome, hCG trigger, oocyte retrieval interval, progestin-primed ovarian stimulation

OP-38. Flexible progestin-primed ovarian stimulation in POSEIDON patients: does the timing of stimulation matter?

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Objective: To compare the clinical and embryological outcomes of follicular-phase and luteal-phase initiation of flexible progestin-primed ovarian stimulation (PPOS) in women classified as low prognosis according to the POSEIDON criteria.
Materials and Methods: This prospective study included 101 women undergoing IVF/ICSI at the Assisted Reproductive Technologies Center of Bursa Uludağ University. Patients were assigned to the FPS (n=62) or LPS (n=39) group according to the menstrual cycle phase at presentation. The primary outcome was blastocyst yield; secondary outcomes were stimulation characteristics, oocyte maturity, fertilization, and embryological outcomes. Multivariable regression was performed after adjustment for age, anti-Müllerian hormone (AMH), and antral follicle count (AFC).
Results: Baseline characteristics were comparable between groups. Embryological outcomes, including total oocyte yield, MII oocyte count, fertilization, 2PN embryo count, and blastocyst yield, were similar between FPS and LPS (all p>0.05). Although FPS yielded a higher proportion of mature oocytes (71% vs. 50%, p<0.001), this did not improve blastocyst development. LPS required longer stimulation and higher gonadotropin consumption (both p=0.027). Multivariable regression confirmed that stimulation phase was not an independent predictor of oocyte or embryological outcomes after adjustment for age, AMH, and AFC.
Discussion: These findings agree with previous randomized studies reporting comparable embryological outcomes between follicular- and luteal-phase stimulation in women with low prognosis. Luteal-phase stimulation required longer stimulation and more gonadotropin but did not improve oocyte yield or blastocyst development. After adjustment for age, AMH, and AFC, stimulation phase was not independently associated with embryological outcomes, suggesting that patient-related characteristics rather than the timing of stimulation are the principal determinants of treatment success.
Conclusion: Flexible PPOS initiated during the luteal phase appears to be a feasible alternative to conventional follicular-phase initiation in POSEIDON patients, best regarded as a flexible option in selected clinical scenarios rather than a strategy expected to improve embryological outcomes. Larger prospective studies evaluating cumulative live birth and cost-effectiveness are warranted.

Keywords: POSEIDON, progestin-primed ovarian stimulation, luteal-phase stimulation

OP-39. The impact of three-day GnRH antagonist pretreatment in ovarian stimulation: a systematic review and meta-analysis

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Objective: Three-day GnRH antagonist pretreatment before ovarian stimulation may transiently suppress endogenous gonadotropins and improve follicular synchronization. We evaluated whether this strategy improves ovarian stimulation or reproductive outcomes compared with the conventional GnRH antagonist protocol.
Materials and Methods: We conducted a systematic review and meta-analysis of studies comparing GnRH antagonist protocols with versus without three-day pretreatment. PubMed/MEDLINE, Embase, and Cochrane CENTRAL were searched from inception to January 3, 2026. Outcomes included oocytes retrieved, metaphase II (MII) oocytes, embryos developed, gonadotropin dose, stimulation duration, ovarian hyperstimulation syndrome (OHSS), clinical pregnancy, miscarriage, and live birth. Random-effects models were used to calculate mean differences (MDs) or odds ratios (ORs) with 95% confidence intervals (CIs).
Results: Seven studies, including four randomized controlled trials and three retrospective studies, were included. Pretreatment did not significantly affect oocytes retrieved (7 studies; 796 vs. 811 women; MD 0.40, 95% CI −1.17 to 1.97), MII oocytes (5 studies; 594 vs. 609 women; MD 0.76, 95% CI −1.40 to 2.93), embryos developed (5 studies; 594 vs. 609 women; MD 0.52, 95% CI −0.10 to 1.14), gonadotropin dose, stimulation duration, or OHSS risk. Clinical pregnancy (5 studies; OR 1.17, 95% CI 0.73 to 1.87) and live birth rates (3 studies; OR 0.91, 95% CI 0.60 to 1.39) were also comparable. Analyses restricted to randomized trials showed similar findings. In women with polycystic ovary syndrome, pretreatment shortened stimulation duration without improving reproductive outcomes.
Conclusion: Current evidence does not show improved ovarian stimulation or reproductive outcomes with three-day GnRH antagonist pretreatment in unselected women or those with polycystic ovary syndrome.

Keywords: GnRH antagonists, GnRH a

OP-40. Predictive Value of Systemic Inflammatory Indices in Recurrent Implantation Failure

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Objective: Recurrent implantation failure is one of the most complex and challenging clinical conditions encountered in assisted reproductive technologies, and its underlying etiology is generally multifactorial. Although the role of inflammation in the implantation process has gained increasing attention in recent years, the clinical value of systemic inflammatory indices in this patient population has not yet been clearly established. This study aimed to evaluate the clinical and predictive value of systemic inflammatory indices derived from hematological parameters in patients with recurrent implantation failure.
Materials and Methods: This retrospective cohort study included 140 infertile patients aged 18–40 years without concomitant systemic disease, divided into two groups: the recurrent implantation failure group (n = 70) and the control group (n = 70). Systemic inflammatory indices were analyzed in all participants, including the neutrophil-to-lymphocyte ratio (NLR), platelet-to-lymphocyte ratio (PLR), monocyte-to-lymphocyte ratio (MLR), systemic immune-inflammation index (SII), systemic inflammation response index (SIRI), and aggregate index of systemic inflammation (AISI), calculated from neutrophil, lymphocyte, monocyte, and platelet counts.
Results: Lymphocyte levels were significantly higher in the recurrent implantation failure group than in the control group (29.1 vs. 26.8, p = 0.034). The monocyte-to-lymphocyte ratio (MLR) also differed significantly between the two groups (0.26 vs. 0.31, p = 0.024). Receiver operating characteristic (ROC) analysis demonstrated an AUC value of 0.610 for MLR, with a cutoff value of 0.26 yielding a sensitivity of 50% and a specificity of 65%. In contrast, no significant differences were observed between the groups with respect to SII (p = 0.871) and NLR (p = 0.912).
Conclusion: These findings indicate that the systemic inflammatory response may play a role in the implantation process and suggest that the MLR index may serve as a potential biomarker for predicting recurrent implantation failure. As an easily accessible marker derived from routine complete blood count parameters, this index may have clinical utility in personalized fertility treatment strategies.

Keywords: NLR, MLR, Recurrent Implantation Failure, SII

OP-41. Association Between Fundal Indentation Depth and Pregnancy Outcomes Following Hysteroscopic Fundal Resection: A Single-Center Retrospective Cohort Study

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Objective: Hysteroscopic fundal resection for fundal indentation remains controversial, since the 2021 American Society for Reproductive Medicine (ASRM) classification considers arcuate uterine morphology a normal variant. This study evaluated fundal indentation depth and its association with spontaneous and clinical pregnancy outcomes after resection.
Materials and Methods: This retrospective cohort study included 120 women who underwent hysteroscopic fundal resection for infertility or recurrent pregnancy loss between September 2020 and July 2026. Fundal indentation depth, measured on the coronal plane by three-dimensional transvaginal ultrasonography or previous imaging, was classified as 3–5 mm, >5–10 mm or >10 mm. Exclusions were major uterine anomalies, intrauterine adhesions, cavity-distorting lesions, advanced endometriosis, hydrosalpinx, PGT cycles and incomplete records. Patients attempting spontaneous conception were followed for a mean of 18.6 ± 7.4 months; among IVF/ICSI patients, only the first frozen embryo transfer with a single non-PGT day-5 blastocyst was evaluated. Clinical pregnancy was the primary and spontaneous pregnancy the secondary outcome.
Results: 42 patients were assigned to Group1, 41 to Group2 and 37 to Group3, with comparable baseline characteristics. Spontaneous conception was attempted by 20, 30 and 29 patients in Groups1–3, respectively, with spontaneous pregnancy in 40.0%, 63.3% and 72.4%. Compared with Group 1,spontaneous pregnancy was significantly more likely in Group3(RR=1.81, 95% CI:1.01–3.24; OR=3.94, 95% CI:1.17–13.20), while Groups1 and 2 did not differ significantly. Trend analysis showed a significant increase in spontaneous pregnancy rates with increasing indentation depth (OR=1.97, 95% CI:1.07–3.61; p=0.029). Clinical pregnancy rates after the first frozen embryo transfer were similar among groups; no major surgical complications occurred.
Discussion: Increasing fundal indentation depth may identify a subgroup deriving greater reproductive benefit from resection for spontaneous conception; comparable baseline characteristics support a contribution of indentation depth itself. No significant association

was observed with clinical pregnancy after IVF/ICSI, possibly reflecting the limited number of IVF/ICSI patients. The retrospective design and potential selection bias should be considered.

Keywords: Fundal Indentation, Hysteroscopic Fundal Resection, Pregnancy Outcomes

OP-42. Serum Myo-Inositol Oxygenase Levels Do Not Differ Between Women With and Without Polycystic Ovary Syndrome

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Introduction: Myo-inositol (MI) supplementation improves metabolic and reproductive outcomes in women with polycystic ovary syndrome (PCOS) [1, 2], yet the mechanisms underlying altered MI homeostasis remain unclear [3–5]. Myo-inositol oxygenase (MIOX), the only known enzyme responsible for MI degradation in vivo, has been proposed as a potential regulator of systemic MI availability [6]. This study investigated whether circulating MIOX levels differ between women with newly diagnosed PCOS and healthy controls.
Materials and Methods: This prospective controlled study included 60 women with newly diagnosed PCOS according to the Rotterdam criteria [7] and 60 age-matched healthy controls. Fasting blood samples were obtained during the early follicular phase, and serum MIOX concentrations were measured using enzyme-linked immunosorbent assay (ELISA). Demographic characteristics, hematological indices, biochemical parameters, and reproductive hormone profiles were compared between groups.
Results: Baseline demographic characteristics, including age and body mass index, were comparable between the groups. Serum MIOX concentrations did not differ significantly between women with PCOS and controls (median, 16.4 vs. 19.4 ng/mL; p=0.743). Biochemical markers and reproductive hormone profiles also showed no significant between-group differences. Although the LH/FSH ratio was higher in the PCOS group, the difference was not statistically significant (p=0.243). Among hematological variables, only the lymphocyte count was significantly higher in women with PCOS (2.53 ± 0.62 vs. $2.26 \pm 0.59 \times 10^3/\mu L$; p=0.016).
Conclusion: Circulating MIOX concentrations are not altered in women with newly diagnosed PCOS, suggesting that MIOX dysregulation is unlikely to explain the altered MI homeostasis proposed in PCOS. Mechanisms other than MIOX-mediated MI catabolism may underlie MI metabolism in PCOS and warrant further investigation.

Keywords: Polycystic ovary syndrome, myo-inositol, myo-inositol oxygenase, inositol metabolism

Tab OP-42-1. Selected laboratory findings in women with PCOS and healthy controls Abbreviations: Data are presented as mean ± SD unless otherwise indicated. CI, confidence interval; FSH, follicle-stimulating hormone; LH, luteinizing hormone; MIOX, myo-inositol oxygenase; PCOS, polycystic ovary syndrome; SD, standard deviation. A p value <0.05 was considered statistically significant.

Outcome	AFC <5 (n=40)	AFC ≥5 (n=40)	Effect
≥4 retrieved oocytes	10/40 (25.0%)	24/40 (60.0%)	RR 2.40 (1.26–6.42)
≥5 retrieved oocytes	7/40 (17.5%)	19/40 (47.5%)	RR 2.71 (1.28–9.74)
≥3 MII oocytes	15/40 (37.5%)	29/40 (72.5%)	RR 1.93 (1.23–3.68)
Zero-oocyte cycle	9/40 (22.5%)	1/40 (2.5%)	p=0.014
Composite failure (≤3 oocytes)	30/40 (75.0%)	16/40 (40.0%)	RR 0.53 (0.32–0.84)
Ovarian sensitivity index, median	0.9	1.9	p<0.001

OP-43. Phenotype-Associated Hepatic Burden in Polyendocrine Metabolic Ovarian Syndrome: Quantitative Ultrasonographic Assessment of Steatosis and Fibrosis

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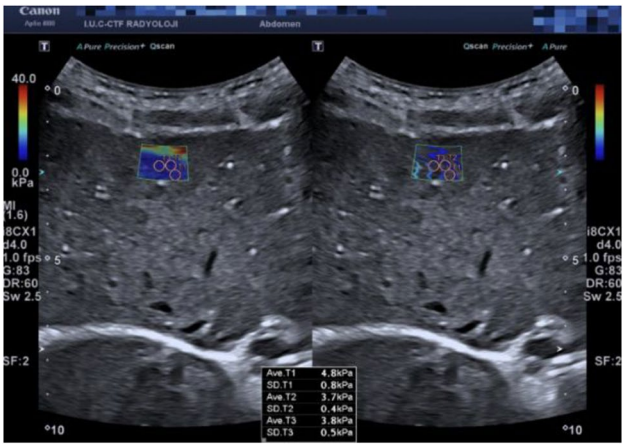
Objective: This study evaluated the hepatic effects of polyendocrine metabolic ovarian syndrome (PMOS), formerly known as polycystic ovary syndrome (PCOS), using biochemical parameters and quantitative ultrasonographic methods, and investigated the impact of PMOS phenotypes on hepatic steatosis and fibrosis.
Materials and Methods: This prospective study included 135 patients diagnosed with PMOS. Participants were classified into four phenotypes (Phenotype A, B, C, and D) according to the Rotterdam criteria. Phenotypes A and B formed the classic PMOS group and Phenotypes C and D the non-classic group. Demographic characteristics, biochemical parameters and radiological imaging findings were evaluated. Attenuation imaging (ATI) was used to assess hepatic steatosis and shear wave elastography to assess hepatic fibrosis. The presence and severity of steatosis and fibrosis were determined, and intergroup comparisons and correlations between variables were analyzed.
Results: The mean age was 24 years in the classic PMOS group and 23 years in the non-classic group, with no significant differences between the groups in demographic and clinical characteristics. Among the 135 patients with PMOS, hepatic steatosis was detected in 101 (74.8%) and findings compatible with hepatic fibrosis in 31 (23.0%). Of the 101 patients with hepatic steatosis, 83 (82.2%) had grade 2–3 steatosis. Among the 31 patients with fibrosis, 18 (58.1%) showed findings consistent with advanced fibrosis requiring further evaluation. ATI and shear wave elastography findings were significantly higher in the classic PMOS group than in the non-classic group (p<0.001). A significant correlation was found between hepatic steatosis and fibrosis findings (r=0.499, p=0.001).
Discussion: Hepatic steatosis is common in patients with PMOS and is more pronounced in the classic phenotypes. The detection of fibrosis-compatible findings only in the classic PMOS group suggests that this subgroup may have a greater hepatic burden.
Conclusion: ATI and shear wave elastography appear to be useful non-invasive methods for the assessment of hepatic involvement in patients with PMOS.

Keywords: ATI, hepatic steatosis, PCOS, PMOS

Tab OP-43-1. Clinical and demographic parameters of classic and non-classic PMOS phenotypes

	CLASSIC PMOS				NON-CLASSIC PMOS				
	MEDIAN	MINIMUM	MAXIMUM	MEAN±SD	MEDIAN	MINIMUM	MAXIMUM	MEAN±SD	P VALUE
AGE	23	18	37	24±4	24	18	32	23±4	0,693
HOMA-IR	2,4	0,5	17	3,6±2,8	2,2	0,8	8,5	2,4±1,2	0,023
FIB-4	0,4	0,1	1,2	0,4±0,2	0,3	0,1	0,5	0,3±0,1	0,047
FSH	5,4	0,5	9,1	5,3±1,4	5,9	2,2	10,2	6,0±1,6	0,026
LH	9,4	0,3	26,9	10,6±5,5	10,1	1,6	30	11,1±5,7	0,626
DİHYDROEPI AND ROSTERONE	311	95	741	319±111	352	172	940	371±130	0,017
FASTING GLUCOSE	89	74	122	90,6±8,6	87	69	110	86,7±7,4	0,012
LDL CHOLESTEROL	115	48	178	115,2±28,7	110,5	51	176	108,9±30,4	0,217
BODY MASS INDEX	25	16	52	26,6±6,3	24,7	17	41	25,5±4,8	0,370
HEPATIC STEATOSIS INDEX	35,5	20	69,3	36,3±8,3	33,9	23,5	49,6	34,1±5,7	0,175

Fig OP-43-1. Two dimensional shear wave elastography



OP-44. Comparison of Tirzepatide and Metformin Treatment in a Polyendocrine metabolic ovarian syndrome Rat Model

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Objective: This study evaluated tirzepatide versus metformin on ovarian morphology, estrous cycle regulation, metabolic parameters, and weight loss in a letrozole-induced Polyendocrine Metabolic Ovarian Syndrome (PMOS) rat model.

Materials and Methods: In this experimental animal study, 36 rats were randomized into 4 groups of 9: sham, metformin, tirzepatide, and PMOS control. The PMOS model was established with letrozole for 21 days, after which metformin (300 mg/kg/day) and tirzepatide (0.5 mg/kg, subcutaneously, twice weekly) were given for 28 days. Vaginal smears taken during induction and treatment assessed estrous cycle phases. Ovaries were examined histopathologically for cystic follicle number, granulosa and theca thickness, corpus luteum count, and CREB immunoreactivity; fasting blood glucose, insulin, HOMA-IR, testosterone, and body weight changes were also evaluated.

Results: Fasting blood glucose, elevated in the PMOS control group, fell significantly in both treatment groups, with lower values under tirzepatide ($p<0.001$). Insulin, testosterone, and HOMA-IR differed significantly among groups ($p\leq0.001$). Versus PMOS control, insulin was lower with tirzepatide ($p=0.001$), and HOMA-IR fell with both tirzepatide ($p<0.001$) and metformin ($p=0.028$), being lowest with tirzepatide. Testosterone was lower with tirzepatide ($p=0.039$), the metformin reduction being more limited. Body weight decreased in both treatment groups, more markedly with tirzepatide ($p=0.007$). Morphologically, the PMOS control group showed more cystic follicles and estrous cycle disruption; both treatments significantly reduced cystic follicles, more markedly with metformin ($p=0.025$). Both showed a decreased diestrus phase and increased estrus and metestrus phases, with greater improvement in the estrus/diestrus ratio under tirzepatide ($p<0.05$). Corpus luteum counts did not differ among groups ($p=0.314$).

Conclusion: Both drugs benefited ovarian morphology, estrous cycle regulation, and metabolic parameters in experimental PMOS, tirzepatide more markedly than metformin for cycle regulation, body weight, fasting blood glucose, insulin, HOMA-IR, and testosterone. The unchanged corpus luteum counts suggest that improvement in ovulation may involve more complex mechanisms, supporting multidimensional, targeted therapeutic approaches in PMOS management.

Keywords: Polyendocrine Metabolic Ovarian Syndrome, metformin, tirzepatide, estrous cycle

Tab OP-44-1. Comparison of Significant Findings Among Study Groups

Parameter	Sham(a)	Metformin(b)	Tirzepatide (c)	PMOS control(d)	p-value	Pairwise Comparisons
Fasting Glucose	Within normal limits	Decreased	Significantly decreased	Increased	<0.001	a, b, c<d
Insulin	Within normal limits	Decreased	Significantly decreased	Increased	≤0.001	a,d>c
HOMA-IR	Within normal limits	Decreased	Significantly decreased	Increased	≤0.001	d>c,b
Testosterone	Within normal limits	Decreased	Significantly decreased	Increased	≤0.001	b,d>a d>c
Body Weight	Within normal limits	Decreased	Significantly decreased	Increased	0.007	c<d
Cystic Follicles	Minimal	Significantly decreased	Decreased	Increased	0.025	b<c
Corpus Luteum	Within normal limits	No significant change	0.314			
Estrous Cycle	Regular	Improved	Significantly improved	Disrupted	<0.05	

OP-45. PPOS versus GnRH Antagonist Protocols in Patient With PCOS

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Objective: Ovarian stimulation in IVF aims to prevent premature LH surge and follicular asynchrony. Compared with GnRH agonists, PPOS suppresses LH with progestins and may reduce treatment burden, costs, and OHSS risk. We compared ovarian stimulation, embryological, and pregnancy outcomes between GnRH antagonist and PPOS protocols in women with PCOS.
Materials and Methods: This multicenter retrospective study included women aged 18–50 years with Rotterdam-defined PCOS undergoing PPOS or GnRH antagonist stimulation between January 2021-2025. Primary outcomes were FORT and FOI; secondary outcomes included retrieved oocyte count, MII oocyte, fertilization, cleavage, blastocyst formation rates, and pregnancy outcomes. Continuous and categorical variables were compared using Student's t-test/Mann–Whitney U and chi-square tests, respectively. Generalized estimating equations (GEE) assessed the effects of protocol and other variables on cycle outcomes.
Results: Among 262 cycles (128 GnRH antagonist, 134 PPOS), FORT was similar, while FOI was higher with PPOS(74.4% vs. 71.7%, p=0.018). PPOS required less gonadotropin (1862 vs. 2325 IU, p<0.001) and yielded higher MII(83.6% vs. 77.4%, p<0.001), cleavage (95.5% vs. 90.7%, p<0.001), and blastocyst formation rates (50.3% vs. 45.8%, p=0.022). Pregnancy-outcomes were similar except for a higher clinical pregnancy loss rate in the PPOS(21.2% vs. 11%, p=0.011). Among Vienna Consensus indicators, only MII rate was higher with PPOS(75.8% vs. 64.0%, p=0.041), prompting GEE analysis. PPOS(OR 1.760, 95% CI 1.008–3.074, p=0.047) and GnRH agonist triggering (OR 2.292, 95% CI 1.284–4.088, p=0.005) predicted higher MII rates in univariate analysis, while multivariate analysis identified age (OR 1.125, 95% CI 1.015–1.246, p=0.024) and GnRH agonist triggering (OR 3.865, 95% CI 1.208–12.368, p=0.023) as positive and AMH(OR 0.873, 95% CI 0.784–0.972, p=0.013) as a negative predictor.(Table OP-45-1).
Conclusion: Despite similar pregnancy outcomes, PPOS improved FOI, MII oocyte, cleavage, and blastocyst formation rates. In PCOS, PPOS with GnRH agonist triggering and a freeze-all strategy may optimize IVF outcomes while reducing OHSS risk.

Keywords: Progestin Primed Ovarian Stimulation, GnRH Antagonist Protocol, FORT, FOI

Tab OP-45-1. Univariate and multivariate GEE analysis of variables affecting MII oocyte rate in PCOS

	Unadjusted			Adjusted		
	Odds Ratio (OR)	%95 CI	p	Odds Ratio (OR)	95% CI	p
Intercept				0.001	0.000015 – 0.071	0.001
Protocol (PPOS)**	1.760	1.008 – 3.074	0.047*	2.468	0.958 – 6.360	0.061
Age	1.027	0.967 – 1.090	0.389	1.125	1.015 – 1.246	0.024*
BMI	1.024	0.976 – 1.075	0.333	1.071	0.965 – 1.187	0.197
AMH	0.938	0.867 – 1.015	0.112	0.873	0.784 – 0.972	0.013*
Basal AFC	0.970	0.935 – 1.007	0.116	1.064	0.987 – 1.147	0.108
Total Gonadotropin Dose	1.000	1.000 – 1.000	0.684	1.000	0.999 – 1.001	0.564
Trigger Type (GnRH-a) ***	2.292	1.284 – 4.088	0.005*	3.865	1.208 – 12.368	0.023*
Trigger Type (hCG) ***	0.992	0.329 – 2.989	0.988	4.981	0.603 – 41.142	0.136

Statistically significant results (p <0.05). ** GnRH antagonist protocol as reference. * Dual ovulation triggering as reference. Artificial Intelligence in IVF: Research Trends and Fut*

OP-46. Thyroid Function and Thyroid Hormone Sensitivity in Women With and Without Polycystic Ovary Syndrome: Associations With Reproductive Hormones

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Introduction: Thyroid function and thyroid hormone sensitivity may interact with the hypothalamic–pituitary–ovarian axis, but data in polycystic ovary syndrome (PCOS) remain limited. We evaluated conventional thyroid function and thyroid hormone sensitivity indices in women with and without PCOS and explored their associations with reproductive hormones.
Materials and Methods: This cross-sectional study included 82 women aged 18–35 years: 42 with PCOS and 40 with regular menstrual cycles without PCOS. Serum thyroid-stimulating hormone (TSH), total triiodothyronine (T3), free thyroxine (T4), anti-Müllerian hormone (AMH), luteinizing hormone (LH), and follicle-stimulating hormone (FSH) were evaluated. The FSH/LH ratio, TSH index (TSHI), thyrotropin thyroxine resistance index (TT4RI), and T3/T4 ratio were calculated. Associations were assessed using Pearson or Spearman correlation analysis.
Results: Women with PCOS were younger than controls (23 vs. 32 years, $p<0.001$) and had higher AMH (5.06 vs. 1.84, $p<0.001$) and LH (9.15 vs. 6.90, $p=0.010$), whereas the FSH/LH ratio was lower (0.61 vs. 1.13, $p<0.001$). TSH, T3, T4, TSHI, TT4RI, and T3/T4 did not differ significantly between groups. Within the PCOS group, BMI was positively correlated with T3 ($r=0.409$, $p=0.034$) and the T3/T4 ratio ($r=0.392$, $p=0.043$), while FSH was negatively correlated with T3 ($r=-0.427$, $p=0.047$). No significant associations were observed between thyroid-related indices and the remaining reproductive hormones.
Conclusion: Despite marked differences in reproductive hormonal profiles, women with PCOS did not exhibit significant alterations in conventional thyroid function or thyroid hormone sensitivity indices compared with controls. The associations of BMI with T3 and the T3/T4 ratio may indicate metabolic modulation of thyroid hormone metabolism rather than primary thyroid hormone resistance in PCOS. Larger, age-adjusted studies are warranted. Word count: 288 (table excluded).

Keywords: Gonadotropins, Polycystic ovary syndrome, Thyroid hormone sensitivity, TSHI

Tab OP-46-1. Comparison of basal and hormonal parameters between study groups

Parameter	Control (n=40)	PCOS (n=42)	P value
Age, years	32 (28–35)	23 (20–27)	<0.001
BMI, kg/m²	25.8 ± 4.15	25.1 ± 4.40	0.569
TSH	2.39 (1.44–3.25)	2.26 (1.44–3.28)	0.659
T3	3.19 ± 0.405	3.29 ± 0.471	0.364
T4	1.20 (1.11–1.38)	1.18 (1.11–1.31)	0.493
TSHI	0.977 ± 0.5349	0.903 ± 0.5289	0.526
TT4RI	2.980 (1.974–3.862)	2.607 (1.683–3.589)	0.385
T3/T4	2.62 ± 0.402	2.76 ± 0.463	0.160
AMH	1.84 (1.28–2.37)	5.06 (3.54–6.21)	<0.001
LH	6.90 (5.30–8.00)	9.15 (6.83–13.58)	0.010
FSH	6.90 (6.13–8.55)	6.05 (5.30–7.73)	0.075
FSH/LH	1.13 (0.77–1.32)	0.61 (0.46–0.88)	<0.001

OP-47. Caffeic acid phenethyl ester (CAPE) diminishes apoptosis and caspases in the PCOS (dehydroepiandrosterone)-induced human granulosa cells

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Objective: Polycystic ovarian syndrome (PCOS) is a common endocrine disorder characterized by ovarian dysfunction and increased granulosa cell apoptosis, which collectively impair fertility. Caffeic acid phenylethyl ester (CAPE) is a bioactive compound derived from propolis. In the present study, we aimed to investigate the protective role of CAPE on PCOS (dehydroepiandrosterone, DHEA)-induced cell viability percentage, apoptosis levels, and caspase activities in the human KGN granulosa cells.
Materials and Methods: In the human KGN cells, we induced four groups as control, CAPE (10 μM for 24 h), DHEA (10 μM for 24 h), and their combinations. In the plate reader, apoptosis levels were measured in the four groups by using a commercial apoptosis kit, although caspase activities were performed by using caspase substrates (7). Cell viability levels were detected by using MTT analyses.
Results: DHEA treatment significantly decreased cell viability and increased apoptotic cell death compared with the control group. CAPE treatment improved cell viability in DHEA-treated KGN cells and significantly reduced apoptosis levels. In addition, CAPE markedly suppressed the activation of caspases (caspase-3, −8, and −9) induced by DHEA exposure.
Conclusion: CAPE may exert a protective effect against DHEA-induced cellular damage in human KGN granulosa cells by reducing apoptosis and suppressing caspase activation. These findings suggest that CAPE could be a promising therapeutic candidate for alleviating granulosa cell death associated with PCOS. However, further molecular and in vivo studies are required to clarify the underlying mechanisms and validate its potential clinical applications.

Keywords: Apoptosis, Caffeic acid phenylethyl ester, caspases, PCOS

OP-48. Uterine Peristalsis on the Day of Frozen Embryo Transfer: A Prospective Comparison of Natural and Artificial Cycles Using 4D Transvaginal Ultrasonography

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Objective: To compare uterine peristalsis (UP) frequency on the day of frozen embryo transfer (FET) between natural-cycle (NC) and artificial-cycle (AC) endometrial preparation and to assess its association with pregnancy outcomes using 4D transvaginal ultrasonography.
Materials and Methods: This prospective cohort study included 62 women undergoing FET at a university-affiliated IVF center (NC, n=36; AC, n=26). Uterine peristalsis was assessed 10–30 minutes before embryo transfer using simultaneous sagittal 2D and coronal 4D transvaginal ultrasonography. Six-minute recordings were analyzed at 10× speed by blinded evaluators. The primary outcome was mean uterine contraction frequency (waves/min) according to endometrial preparation protocol. Secondary outcomes included clinical and ongoing pregnancy rates and the association between pre-transfer contractility and ongoing pregnancy.
Results: Mean uterine contraction frequency was significantly higher in AC than NC cycles (1.19±0.78 vs 0.79±0.55 waves/min; $p=0.033$). Among women who underwent embryo transfer, those

with an ongoing pregnancy had lower pre-transfer contraction frequency than those without an ongoing pregnancy (0.71±0.53 vs 1.01±0.70 waves/min; p=0.019). The proportion of blastocyst transfers was higher among women achieving ongoing pregnancy (66.7% vs 34.2%; p=0.042). In subgroup analyses, contraction frequency remained higher with AC preparation among cleavage-stage transfers (1.38±0.75 vs 0.81±0.67; p=0.038) and good-quality embryo transfers (1.31±0.74 vs 0.72±0.50; p=0.010). Clinical pregnancy (34.6% vs 36.1%; p=0.903) and ongoing pregnancy rates per initiated cycle (26.9% vs 30.6%; p=0.756) were comparable between AC and NC groups.
Conclusion: Artificial-cycle FET was associated with higher uterine contractility on the day of embryo transfer, while lower pre-transfer peristalsis was associated with ongoing pregnancy. These findings suggest that endometrial preparation may influence uterine contractility and support further study of UP as a potential marker of implantation conditions in FET cycles. Outcome Artificial cycle Natural cycle p value

Keywords: Frozen embryo transfer, uterine peristalsis, natural cycle, artificial cycle

Tab OP-48-1. Key cycle characteristics and reproductive outcomes according to endometrial preparation protocol

Outcome	Artificial cycle	Natural cycle	p value
Uterine contraction frequency, waves/min	1.19 ± 0.78	0.79 ± 0.55	0.033
Follicular progesterone, ng/mL	0.18 ± 0.14	0.86 ± 0.42	<0.001
Clinical pregnancy / cycle, n (%)	9 (34.6%)	13 (36.1%)	0.903
Ongoing pregnancy / cycle, n (%)	7 (26.9%)	11 (30.6%)	0.756

OP-49. Association of Endometrial Vascularity Assessed by 3D Power Doppler USG just before progesterone rise with hormone levels and pregnancy rates in Patients Undergoing Frozen Embryo Transfer

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Objective: To investigate the relationship between Vascularization Index (VI), Flow Index (FI), and Vascularization-Flow Index (VFI) values—measured via 3D Power Doppler ultrasonography (3D-PDUS) just before progesterone elevation (on the day of LH peak in the natural cycle [NC] and on the day of progesterone initiation in the artificial cycle [AC])—and serum estradiol (E2), LH, and progesterone levels measured on the same day in patients undergoing frozen-thawed embryo transfer (FET).
Materials and Methods: A Total of 91 frozen-thawed embryo transfer (FET) cycles undergoing endometrial preparation with natural cycles (NC, n=80) and artificial cycles (AC, n=11) were included. Endometrial VI, FI, and VFI were measured using 3D-PDUS on the day of progesterone initiation in the AC group and on the day of the serum LH surge in the NC group. Same day serum LH, estradiol (E2), and progesterone levels were recorded. The cycles were divided into quartiles based on VI, FI, and VFI values, and the demographic, cycle, and endometrial perfusion data were compared among the groups.
Results: Serum LH levels were significantly lower in the lowest VFI quartile (Table OP-49-1) (p=0.023). No statistically significant association was found between the 3D-PDUS endometrial perfusion parameters and same-day E2 levels, progesterone levels, or pregnancy rates.
Conclusion: As a novel finding, this study demonstrates that low serum LH levels are associated with lower endometrial VFI values assessed by 3D-PDUS. This finding suggests that low LH peak levels may have a negative impact on endometrial angiogenesis.

Keywords: FET, 3D Power Doppler, VFI, LH

Tab OP-49-1. Comparison of Demographic, Clinical, Hormonal Characteristics and Pregnancy Rates of Cases According to VFI Quartiles

VARIABLES	GRUP 1	GRUP 2	GRUP 3	GRUP 4	p value
Age(y)	33,35±4,98	32,13±5,34	30,65±4,78	31,68±5,29	0,176
BMI (kg/m2)	26,17 (23,38- 36,75)	24,61 (23,03- 26,22)	24,49 (22,68- 27,06)	23,81 (20,57- 27,73)	0,639
Duration of Infertility(y)	2,00 (1 - 5)	3,00 (1 - 4)	2,50(1,50- 5,0)	2,00 (1,0 −4,0)	0,649
Basal AMH (ng/ml)	1,20 (0,60 −2,20)	1,80 (1,10 −2,70)	1,70 (1,20 −3,70)	1,50 (0,80 −4,90)	0,286
Basal AFC (n)	7,00 (5- 14,50)	10,00 (7- 15)	10,00 (7- 13)	9,00 (5,50 −12,50)	0,699
Basal FSH (mIU/ml)	6,50 (5,60 −9,40)	6,50 (5,20 −8,30)	6,60 (5,40 −8,20)	7,30 (5,70-8,00)	0,960

Tab OP-49-2. Serum LH levels were significantly lower in the lowest VFI quartile

Basal LH (mIU/ml)	**4,20 (3,20-7,10)**	**5,90 (4,70-7,30)**	**5,60 (4,10- 6,50)**	**6,50 (4,20-8,50)**	**0,208**
Basal E2 (pg/ml)	40,45 (25,40- 52,0)	46,00 (37- 59,60)	42,00 (35 - 51)	46,70 (37,60 50,50)	0,801
Basal Progesterone (ng/ml)	0,20 (0,20-0,40)	0,40 (0,20-0,50)	0,35 (0,20- 0,61)	0,40 (0,20-0,50)	0,198
Endometrial Thickness(mm)	3,80 (3–4,60)	3,70 (2,90-4,80)	3,60 (3,20- 4,50)	4,10 (3,00–5,20)	0,735
E2 on the Day of Doppler (pg/mL)	247 (196–295)	225,00 (183- 313)	215,00 (150 −318	241,00 (160 - 301)	0,531
LH on the Day of Doppler (mIU/mL)	28,50(12,60- 37,60)	40,30(31,80- 52,80	41,30 (31 - 54)	40,95(22,80- 66,40)	0,023
Progesterone on the Day of Doppler (ng/mL)	0,60 (0,30-0,97)	0,75 (0,60-1,00)	0,80 (0,60- 0,98)	0,83 (0,50-1,20)	0,768
Number of Transferred Embryos (n)	1,24±0,24	1,25±0,44	1,39±0,50	1,43±0,51	0,441
Pregnancy Rate n (%)	6 (28,6)	9 (47,4)	6 (27,3)	8 (38,1)	0,523

OP-50. Endometrial Preparation Protocols and Live Birth After Euploid Embryo Transfer: A Systematic Review and Meta-analysis of Programmed versus Natural Cycles

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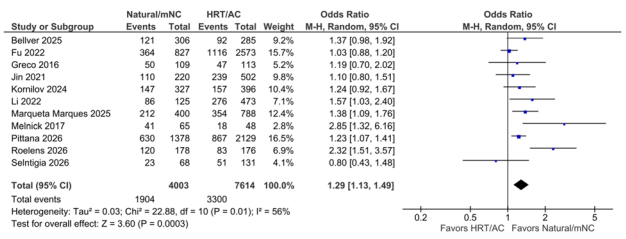
Objective: Natural or modified natural cycle (NC/mNC) endometrial preparation has been suggested to outperform programmed hormone replacement therapy (HRT) in unselected frozen embryo transfer (FET) populations, but embryo euploidy is a major confounder in these studies. This systematic review and meta-analysis compared reproductive outcomes between NC/mNC and HRT endometrial preparation in women undergoing single euploid transfers (SET).
Materials and Methods: PubMed, Scopus, Web of Science, and the Cochrane Library were searched from inception to July 2026 for randomized and cohort studies comparing NC/mNC with HRT for endometrial preparation in autologous SET cycles. The primary outcome was live birth; secondary outcomes were, clinical pregnancy, biochemical pregnancy and miscarriage. Pooled odds ratios (ORs) with 95% confidence intervals (CIs) were calculated using random-effects meta-analysis; heterogeneity was assessed with I^2.
Results: Compared with HRT, NC/mNC was associated with significantly higher odds of clinical pregnancy (n = 11,617; OR 1.21, 95% CI 1.07–1.37; I2 = 45%) and live birth (n = 11,617; OR 1.29, 95% CI 1.13–1.49; I2 = 56%)(Figure OP-50-1). Biochemical pregnancy per transfer (n = 7,141; OR 0.47, 95% CI 0.27–0.81; I2 = 77%) and miscarriage per clinical pregnancy (n = 6,493; OR 0.64, 95% CI 0.50–0.81; I2 = 47%) were also significantly lower with NC/mNC.
Discussion: Restricting the analysis to euploid transfers provides a robust assessment of endometrial preparation. The improved live birth and reduced miscarriage rates with NC/mNC support a possible biological advantage from preserved corpus luteum function. However, the predominance of retrospective studies and protocol variability warrant cautious interpretation.
Conclusion: In women undergoing SET, NC/mNC endometrial preparation was associated with higher clinical pregnancy and live birth rates and lower miscarriage risk than HRT, indicating that the preparation protocol may independently influence pregnancy outcomes.

Keywords: Euploid embryo transfer, Endometrial preparation, Natural cycle, Hormone replacement therapy

Fig OP-50-1. Forest plot comparing live birth rates between NC/mNC and HRT cycles following single euploid embryo transfer.



OP-51. Increased hypertensive risk in artificial frozen embryo transfer is not reflected in first- or second-trimester uterine artery pulsatility index

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Objective: To determine whether endometrial preparation protocol is associated with hypertensive disorders of pregnancy (HDP), aspirin initiation, and first- and second-trimester mean uterine artery pulsatility index (UtA-PI), using fresh embryo transfer (ET) as the reference group.
Materials and Methods: This single-center retrospective cohort included 847 singleton pregnancies conceived by fresh ET (n=604), artificial-cycle frozen embryo transfer (AC-FET; n=205), or ovulatory FET (natural or modified natural; n=38). The primary endpoint was HDP, defined as gestational hypertension or preeclampsia, and was assessed among women with documented aspirin status (n=704). Secondary and tertiary endpoints were aspirin initiation and mean UtA-PI in each trimester, respectively. Between-group comparisons used exact and Welch/Kruskal–Wallis procedures. Adjusted estimates were derived using Firth penalized logistic regression with maternal age and BMI as covariates, followed by marginal standardization and 3,000 bootstrap replicates.
Results: HDP occurred in 47/505 fresh ET (9.3%), 26/167 AC-FET (15.6%), and 1/32 ovulatory FET pregnancies (3.1%; p=.035). Adjusted HDP rates were 8.4%, 17.1%, and 4.5%, respectively. Compared with fresh ET, AC-FET was associated with increased HDP risk (adjusted risk ratio 2.05, 95% CI 1.32–3.23; adjusted OR 2.34, 95% CI 1.35–4.04). Aspirin was initiated in 29.2%, 19.9%, and 14.3% of pregnancies, respectively (p=.012). Mean UtA-PI did not differ between groups in the first trimester (1.53±0.51, 1.50±0.50, and 1.40±0.37; adjusted p=.114) or second trimester (1.00±0.36, 0.99±0.37, and 0.92±0.25; p=.387). UtA-PI above the 90th centile independently predicted HDP in both trimesters.
Conclusion: AC-FET was associated with approximately twice the adjusted risk of HDP compared with fresh ET despite similar first- and second-trimester UtA-PI. These findings suggest that excess hypertensive risk in artificial cycles may arise through mechanisms not reflected by detectable changes in uterine artery impedance.

Keywords: Frozen embryo transfer, Artificial cycle, Hypertensive disorders of pregnancy, Uterine artery pulsatility index

Tab OP-51-1. Hypertensive disorders of pregnancy, aspirin initiation, and uterine artery pulsatility index according to embryo transfer protocol Abbreviations: AC-FET, artificial-cycle frozen embryo transfer; CI, confidence interval; ET, embryo transfer; FET, frozen embryo transfer; HDP, hypertensive disorders of pregnancy; SD, standard deviation; UtA-PI, uterine artery pulsatility index. [a] Adjusted joint 2-df test. For AC-FET versus fresh ET, the adjusted risk difference was +8.8 percentage points (95% CI 3.0–15.0), adjusted risk ratio 2.05 (95% CI 1.32–3.23), and

Outcome	Fresh ET	AC-FET	Ovulatory FET	P value
HDP, n/N (%)	47/505(9.3)	26/167 (15.6)	1/32 (3.1)	.035
Adjusted HDP rate, % (95% CI)	8.4 (6.0–10.9)	17.1 (11.6–22.9)	4.5 (1.3–10.8)	.001[a]

Outcome	Fresh ET	AC-FET	Ovulatory FET	P value
Aspirin initiation, %	29.2	19.9	14.3	.012[b]
First-trimester mean UtA-PI, mean ± SD	1.53 ± 0.51	1.50 ± 0.50	1.40 ± 0.37	.114[c]
Second-trimester mean UtA-PI, mean ± SD	1.00 ± 0.36	0.99 ± 0.37	0.92 ± 0.25	.387[d]

CI, confidence interval; ET, embryo transfer; FET, frozen embryo transfer; HDP, hypertensive disorders of pregnancy; SD, standard deviation; UtA-PI, uterine artery pulsatility index. [a] Adjusted joint 2-df test. For AC-FET versus fresh ET, the adjusted risk difference was +8.8 percentage points (95% CI 3.0–15.0), adjusted risk ratio 2.05 (95% CI 1.32–3.23), and adjusted odds ratio 2.34 (95% CI 1.35–4.04; p=.0008). [b]Unadjusted overall comparison; adjusted joint p=.004. [c]Adjusted joint comparison; η^2=.004. [d] Overall comparison; η^2=.002. Abbreviations: AC-FET, artificial-cycle frozen embryo transfer;

OP-52. Does Rescue Subcutaneous Progesterone Equalize Outcomes in HRT-FET Cycles with Low Serum Progesterone on the Day of Transfer?

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Objective: In hormone replacement therapy frozen embryo transfer (HRT-FET) cycles, adequate exogenous progesterone (P4) is critical for endometrial receptivity. This study evaluated the necessity of routine transfer-day serum P4 monitoring and assessed whether rescue subcutaneous P4 effectively compensates for low levels.
Materials and Methods: This retrospective cohort study analyzed 180 HRT-FET cycles (2024–2025) stratified into monitored (n=123) and non-monitored (n=57) groups. All received vaginal micronized P4 (800 mg/day). In the monitored cohort, rescue subcutaneous P4 (50 mg/day) was initiated if serum P4 was <10 ng/mL on transfer day. Baseline characteristics, embryologic parameters, and pregnancy outcomes were compared between groups.
Results: Among monitored cycles, 39.8% (49/123) had transfer-day P4 <10 ng/mL. Baseline demographics and overall clinical pregnancy rates (CPR) were comparable between monitored and non-monitored groups (26.0% vs. 33.3%; p=0.316), despite a higher Day 5 transfer rate in the monitored cohort (77.2% vs. 52.8%; p=0.002). Within the monitored group, patients with optimal P4 (≥10 ng/mL) achieved a significantly higher CPR than those with low P4 receiving rescue therapy (33.8% [25/74] vs. 14.3% [7/49]; p=0.021). Live birth rates exhibited a similar trend favoring optimal P4 (23.0% vs. 10.2%; p=0.093).
Conclusion: Transfer-day P4 monitoring identifies a substantial proportion of women with inadequate serum concentrations in HRT-FET cycles. Initiating rescue subcutaneous P4 upon detecting low P4 fails to fully restore pregnancy outcomes to levels observed in women with inherently adequate luteal phase support. Prospective strategies aiming to prevent insufficient P4 exposure prior to transfer day warrant further investigation.

Keywords: Frozen embryo transfer, Luteal phase support, Progesterone

Tab OP-52-1. Comparison of pregnancy outcomes according to progesterone monitoring and serum P4 levels

Pregnancy Outcomes, n (%)	Non-Monitored Group (n = 57)	Monitored Group (n = 123)	p	Monitored: P4 >10 ng/mL (n = 74)	Monitored: P4 <10 ng/mL (n = 49)	p
Clinical Pregnancy	19 (33.3%)	32 (26.0%)	0.316	25 (33.8%)	7 (14.3%)	0.021
Live Birth	14 (24.6%)	22 (17.9%)	0.320	17 (23.0%)	5 (10.2%)	0.093
Miscarriage (Abortus)	5 (8.8%)	10 (8.1%)	1.000	8 (10.8%)	2 (4.1%)	0.313
Biochemical Pregnancy	1 (1.7%)	9 (7.3%)	0.173	5 (6.8%)	4 (8.0%)	1.000

Values are expressed as n (%). P4: Progesterone. Chi-square test or Fisher's exact test was used for comparisons.

OP-53. Frozen Embryo Transfer Outcomes: Hormone Replacement Therapy versus Letrozole-Induced Modified Natural Cycle — A Retrospective Cohort Study

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Objective: To compare pregnancy outcomes following frozen embryo transfer (FET) after endometrial preparation with hormone replacement therapy (HRT) or a letrozole-induced modified natural cycle.

Materials and Methods: This retrospective cohort study included 2,126 FET cycles from 1,928 patients at a private IVF center in Konya, Turkey, between January 2022 and October 2025. Protocol selection was based on patients' ability to attend frequent monitoring: those able underwent a letrozole-induced modified natural cycle, while others received HRT. In the letrozole group, ovulation was induced with letrozole (2.5 mg BID), followed by recombinant hCG (250 µg) and progesterone 2 days later. In the HRT group, oral estradiol (2 mg TID) was followed by progesterone once endometrial thickness reached ≥7 mm. Embryo transfer was performed after 5 days of progesterone. Continuous and categorical variables were compared using the independent-samples t test and Pearson chi-square test, respectively.
Results: Of 2,126 cycles, 1,436 used HRT and 690 used letrozole; baseline characteristics were comparable. Cycle cancellation was significantly higher with letrozole than HRT (12.91% vs. 7.05%, P<0.001), mainly due to inadequate follicular development and premature follicular rupture, versus endometrial irregularity in the HRT

group. Among cycles proceeding to transfer, pregnancy rates (60.2% vs. 58.8%, P=0.58) and clinical pregnancy rates (54.8% vs. 52.6%, P=0.37) did not differ significantly between HRT and letrozole groups, respectively.
Conclusion: HRT and letrozole-induced modified natural cycles yield comparable pregnancy outcomes per embryo transfer. However, letrozole's higher cancellation rate and greater monitoring burden reduce success per treatment attempt, supporting HRT as the preferred first-line protocol, with letrozole reserved for select patients pending larger prospective studies. Conflict of Interest: The authors declare no conflicts of interest relevant to this work.

Keywords: frozen embryo transfer, letrozole, hormone replacement therapy

Tab OP-53-1. Cycle outcomes after endometrial preparation with hormone replacement therapy or a letrozole-induced modified natural cycle

Outcome	HRT (n=1,436)	Letrozole (n=690)	P value
Cycles proceeding to ET, N	1,343	612	—
Pregnancy rate, % (n/N)	60.2% (808/1,343)	58.8% (360/612)	0.58
Clinical pregnancy rate, % (n/N)	54.8% (736/1,343)	52.6% (322/612)	0.37
Cycle cancellation, % (n/N)	7.05% (93/1,436)	12.91% (78/690)	<0.001
Leading cause of cancellation	Endometrial irregularity	Inadequate follicular development; premature follicular rupture	—

OP-54. Optimal Timing of Blastocyst Transfer in Progestin-Primed Ovarian Stimulation Cycles: On Which Day After Progesterone Initiation?

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Objective: To determine whether blastocyst transfer on Day 5, Day 6 or Day 5 +8 hours after progesterone initiation improves pregnancy outcomes in progestin-primed ovarian stimulation (PPOS) cycles.
Materials and Methods: Retrospective analysis of 140 PPOS cycles performed between 2021 and 2024. Single blastocyst transfers (sET) in women aged <35 years were included, irrespective of embryo grade. For frozen embryo transfer, endometrial preparation started on cycle day 2 with oral estradiol valerate three times daily for at least 10 days. Progesterone began once endometrial thickness reached ≥7 mm: 200 mg micronized progesterone vaginally 3 times a day plus subcutaneous progesterone once a day. Group 1 (n=43): transfer on 5th day (102nd hour); Group 2 (n=20): 6th day (126th hour); Group 3 (n=77): vaginal progesterone started 8 hours earlier, transfer after 110 hours of exposure (5th day).
Results: Positive hCG rates were 55.8%, 60.0%, and 67.5% in Group 1, 2, and 3 respectively. Clinical pregnancy (CP) rates were 51.2%, 60.0%, and 62.3%. Fetal heartbeat detection (ongoing pregnancy) rates were 48.8%, 50.0%, and 53.2%. No statistically significant difference was observed ($p > 0.05$).
Discussion: Earlier studies examined Day 5, Day 6, or Day 7 transfer after progesterone initiation, but to our knowledge not in PPOS-derived blastocysts. Ding et al. compared Day 6 (n=23) versus (vs) Day 7 (n=26), with CP rates 60.9% vs 53.8% and OP rates 56.5% vs 50.0% ($p > 0.05$). Another study found higher but non-significant live birth rates with Day 5 vs Day 7 (31.1% vs 25.7%). Starting progesterone 8 hours earlier (110 hours of exposure) yielded more favorable outcomes here. Limitations include retrospective design, small sample size, and lack of live birth data.
Conclusion: The highest rates of positive pregnancy, CP, and OP were observed in Group 3. Although not statistically significant, transfer after 110 hours of progesterone exposure was associated with improvement in pregnancy outcomes.

Keywords: PPOS, progestin-primed ovarian stimulation, frozen embryo transfer, implantation window

Tab OP-54-1. Comparing pregnancy rates of groups

Outcome (%)	Group 1 (Day 5)	Group 2 (Day 6)	Group 3 (Day 5+8h)
Positive hCG Rate	55.8	60.0	67.5
Clinical Pregnancy Rate	51.2	60.0	62.3
Ongoing Pregnancy Rate	48.8	50.0	53.2

OP-55. A Stair-Step Letrozole Strategy for Frozen Embryo Transfer Preparation: A Preliminary Comparative Study

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Introduction: This preliminary retrospective study compared cycle characteristics and pregnancy outcomes between standard-dose and stair-step letrozole for endometrial preparation in frozen embryo transfer (FET) cycles.
Materials and Methods: This retrospective comparative study included 28 FET preparation cycles: 15 with standard-dose letrozole and 13 with a stair-step strategy. In the stair-step group, patients with an inadequate response after the initial letrozole course received a higher dose without waiting for withdrawal bleeding and were re-monitored approximately 5–6 days later. One cycle converted to hormone replacement therapy remained in the stair-step group. Continuous variables were compared using the Mann–Whitney U test and categorical variables using Fisher's exact test.
Results: Embryo transfer was completed in 15/15 (100.0%) standard-dose cycles and 12/13 (92.3%) stair-step cycles (P=0.464). Peak estradiol was lower in the stair-step group [125 (105–179) vs 218 (142.5–392) pg/mL; P=0.037]. Peak LH, progesterone and endometrial thickness were comparable. Clinical pregnancy occurred in 10/15 (66.7%) and 7/12 (58.3%) cycles, respectively (P=0.706). The combined ongoing pregnancy/live birth rate was 10/15 (66.7%) and 7/12 (58.3%), respectively (P=0.706).
Discussion: An inadequate letrozole response does not necessarily require withdrawal bleeding and cycle restart; stair-step escalation enabled transfer in 12/13 cycles, indirectly supported by PCOS data showing

higher conception and live-birth rates without withdrawal bleeding [1]. Limited follicular growth likely reflects insufficient gonadotropin drive rather than a primed endometrium; dose escalation may add stimulation to a follicular-endometrial environment still early in development. The lower peak estradiol appeared sufficient for endometrial development, as pregnancy outcomes were comparable, although the data cannot demonstrate a threshold effect and are not powered to show equivalence. Stair-step letrozole may rescue cycles with an inadequate response, a practical alternative to cancellation pending validation in larger cohorts.
Conclusion: A stair-step letrozole strategy enabled embryo transfer in 12/13 (92.3%) FET cycles with an inadequate initial response, without waiting for withdrawal bleeding, with pregnancy outcomes comparable to standard-dose letrozole.

Keywords: clinical pregnancy, endometrial preparation, frozen embryo transfer, letrozole

Tab OP-55-1. Cycle characteristics and pregnancy outcomes of standard-dose and stair-step letrozole endometrial preparation cycles. P values were calculated using the Mann–Whitney U test or Fisher's exact test, as appropriate. Pregnancy outcomes were calculated among cycles that proceeded to embryo transfer. One patient failed to develop an adequate follicular response despite stair-step dose escalation; this non-transfer cycle was excluded from pregnancy outcome analyses. Any ongoing pregnancy or live birth was classified as a clinical pregnancy. Data are presented as median (interquartile range) or n/N (%).

Variable	Standard-dose letrozole (n=15)	Stair-step strategy (n=13)	P value
Age, years	28.0 (27.0–32.5)	29.5 (26.8–34.0)	1.000
Infertility duration, years	6.0 (4.0–7.9)	5.0 (3.0–5.8)	0.205
BMI, kg/m²	24.1 (23.6–25.5)	26.5 (23.8–32.6)	0.230
Peak estradiol, pg/mL	218 (142.5–392)	125 (105–179)	0.037
Peak LH	39.2 (20.3–53.3)	31.0 (21.0–42.0)	0.592
Peak progesterone	2.0 (0.9–2.9)	1.7 (1.0–1.8)	0.469
Endometrial thickness, mm	9.7 (9.0–11.0)	11.0 (8.4–12.0)	0.952
Embryo transfer completed	15/15 (100.0)	12/13 (92.3)	0.464
Clinical pregnancy	10/15 (66.7)	7/12 (58.3)	0.706
Ongoing pregnancy/live birth	10/15 (66.7)	7/12 (58.3)	0.706

OP-56. True Natural Versus Modified Natural Cycle Frozen Embryo Transfer: A Retrospective Cohort Study of Pregnancy and Live Birth Outcomes

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Objective: Whether modified natural cycle (mNC) protocols incorporating human chorionic gonadotropin (hCG) for ovulation triggering provide any reproductive advantage over true natural cycle (tNC) protocols for endometrial preparation in ovulatory women remains controversial. This study compared pregnancy and live birth outcomes between tNC-FET and mNC-FET cycles.
Materials and Methods: This retrospective cohort study analyzed 256 frozen-thawed embryo transfer cycles in ovulatory women at a single tertiary center between January 2014 and December 2024; 91 used an mNC and 165 a tNC protocol. All transfers involved a single day-5 good-quality or top-quality blastocyst with identical luteal phase support. Baseline characteristics, ovarian reserve markers, and embryological parameters were compared, and multivariable logistic regression identified predictors of live birth.
Results: The groups were comparable in age (29.88 ± 4.28 vs. 29.96 ± 3.78 years, p=0.880), body mass index (24.86 ± 5.27 vs. 23.73 ± 4.58 kg/m², p=0.145), anti-Müllerian hormone (3.28 ± 2.86 vs. 3.05 ± 1.88 ng/mL, p=0.850), and peak estradiol (9.76 ± 1.55 vs. 9.32 ± 2.18, p=0.065). The mean number of cryopreserved embryos was slightly higher in the mNC-FET group (5.79 ± 3.47 vs. 5.00 ± 3.47, p=0.050), while embryo quality distribution did not differ significantly (top-quality blastocysts: 69.2% vs. 70.3%, p=0.858). Clinical pregnancy rates were 58.2% (53/91) with mNC-FET and 55.2% (91/165) with tNC-FET (p=0.633), and live birth rates were 46.2% (42/91) and 37.0% (61/165), without a statistically significant difference (p=0.151). Women achieving live birth had significantly more cryopreserved embryos than those who did not (5.91 ± 3.68 vs. 4.86 ± 3.29, p=0.024). Endometrial preparation protocol was not independently associated with live birth (OR 1.27, 95% CI 0.74–2.19, p=0.394).
Conclusion: True natural cycle and modified natural cycle protocols yielded comparable clinical pregnancy and live birth rates in ovulatory women undergoing single frozen-thawed day-5 GQ or TQ blastocyst transfer. hCG-triggered ovulation did not confer a significant reproductive advantage over spontaneous ovulation.

Keywords: Frozen embryo transfer, Live Birth, Natural cycle, Modified natural cycle

OP-57. Maternal Age-Related Changes in Blastocyst Chromosomal Outcomes: A Bayesian Multinomial Mixed-Effects Analysis of PGT-A Data

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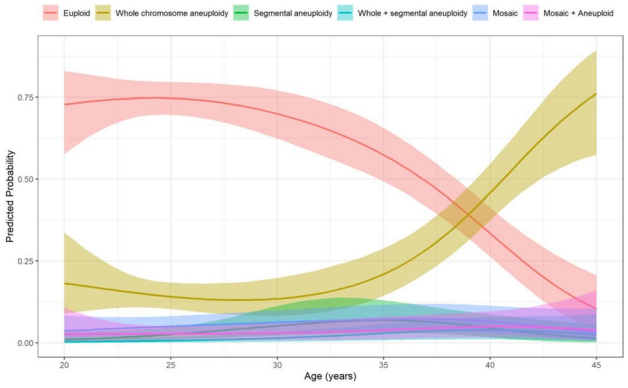
Objective: To evaluate associations between maternal age and blastocyst chromosomal outcomes using a Bayesian multinomial mixed-effects (BMM) logistic regression model.
Materials and Methods: This retrospective single-center cohort comprised 607 trophectoderm-biopsied blastocysts from 200 women aged 20–45 years undergoing IVF in Cyprus from 2019 to 2025. Embryos were classified as euploid, whole-chromosome aneuploid (WCA), segmental aneuploid (SA), combined SA+WCA, mosaic, or mosaic+aneuploid. Within the BMM model, maternal age was modeled with a nonlinear smooth function using a generalized additive model approach, and patient-level random effects accounted for multiple embryos per woman.
Results: Overall, 58.6% of blastocysts were euploid, 23.9% WCA, 4.1% SA, 2.1% SA+WCA, 6.8% mosaic, and 4.4% mosaic+aneuploid. Euploidy declined from 71.9% at ≤30 years to 18.4% at ≥41 years. Model-predicted WCA increased markedly after age 35, exceeded euploidy at approximately 39–40 years, and approached 75% by age 45. SA and mosaicism showed limited age-related variation, whereas mosaic+aneuploidy increased modestly and SA+WCA remained uncommon and nonmonotonic.

Discussion: The findings indicate that maternal aging is associated with a progressive shift from euploidy toward WCA, whereas segmental abnormalities and mosaicism appear less strongly age-dependent. Our findings are consistent with previous large PGT-A cohorts showing euploidy declines rapidly after approximately 35 years and that maternal age is more strongly associated with WCA than with segmental abnormalities or mosaicism. This study extends previous evidence by modeling six chromosomal outcome categories, nonlinear age effects, and within-patient embryo clustering within a BMM logistic regression framework. The estimated crossover at approximately 39–40 years, after which WCA becomes more common than euploidy, represents a cohort-specific prediction rather than a universal clinical threshold.
Conclusion: Maternal age showed a pronounced nonlinear association with blastocyst chromosomal status, with the most pronounced changes occurring after the mid-thirties. Bayesian multinomial mixed-effects logistic regression modeling enabled simultaneous evaluation of multiple PGT-A outcome categories while preserving their biological heterogeneity.

Keywords: PGT-A, Chromosomal Abnormalities, Blastocyst, Maternal Age

Fig OP-57-1. Posterior Predicted Probabilities of PGT-A Chromosomal Outcomes Across Maternal Age



OP-58. Praxa ART: An Open-Source, Standalone Clinical Database for Assisted Reproductive Technology — Guideline-Embedded Cycle Documentation with Real-Time KPI Benchmarking and POSEIDON-Based Risk Stratification

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Objective: In-vitro fertilisation (IVF) documentation is often fragmented across electronic medical records lacking the stage-specific detail required by assisted-reproduction laboratories and consensus benchmarks used to assess cycle quality. We describe Praxa ART, an open-source, single-file database for end-to-end assisted reproductive technology (ART) cycle management with embedded key performance indicator (KPI) benchmarking.
Materials and Methods: Praxa ART is a standalone bilingual HTML5 application requiring no server, installation, or internet connection. Its Patient–oocyte-pick-up cycle–embryo-transfer hierarchy was informed by the Vienna Consensus indicators and Maribor proportions; POSEIDON stratification; Istanbul Consensus and Gardner embryo-grading criteria; ESHRE 2025 ovarian-stimulation guidance; ICMART/WHO 2017 glossary; and published age-specific outcome models, including La Maria, McLernon/SART, and Sunkara.
Results: More than 20 modules cover patient and referral data; reproductive and ART history; pre-IVF interventions; pre-cycle assessment and protocol advice; ovarian stimulation; oocyte retrieval; laboratory conditions; per-oocyte maturity; fertilisation; embryo development; cryopreservation; preimplantation genetic testing; embryo transfer; and pregnancy and obstetric outcomes. A live KPI dashboard calculates maturation, fertilisation, blastulation, and utilisation rates against Vienna Consensus thresholds, displaying colour-coded competency flags and automated alerts. POSEIDON responder class is derived in real time; adequate ovarian reserve is defined as antral follicle count ≥5 and anti-Müllerian hormone ≥1.2, and poor reserve as <5 and/or <1.2. Centre-level analytics aggregate outcomes for audit. CSV/JSON and anonymised exports support interoperability and research.
Discussion: Embedding consensus benchmarks at data entry standardises the minimum ART dataset and enables continuous laboratory competency monitoring. The single-file architecture facilitates structured data capture without dedicated information-technology infrastructure. Limitations include in-session, non-relational storage and absence of multi-user access control; future development targets HL7-FHIR interoperability.
Conclusion: Praxa ART provides a guideline-embedded ART registry and point-of-care benchmarking tool deployable across settings. Declaration of Conflict of Interest: The authors declare no conflicts of interest. Funding: No external funding was received for this study

Keywords: Assisted reproductive technology, in vitro fertilisation, clinical database

OP-59. Praxa FP: An Open-Source, Standalone Clinical Database for Fertility Preservation — Integrating Evidence-Based Risk Stratification, Oocyte Adequacy Counselling, and Long-Term Reproductive Outcome Tracking

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Objective: Fertility preservation (FP) includes pretreatment counselling, procedural and laboratory documentation, and long-term reproductive follow-up. However, general electronic medical records rarely capture the detailed oncofertility workflow or provide guideline-based bedside decision support. We describe Praxa FP, an open-source, single-file clinical database supporting all phases of FP care.
Materials and Methods: Praxa FP is a standalone HTML5 application requiring no server or installation. It uses a Patient–Procedure–Warm/Use-Cycle model across three pathways: adult/adolescent female, adult/adolescent male, and prepubertal child. Clinical content was derived from PanCareLIFE/IGHG 2021, ESHRE Female FP 2020, ESHRE Good Practice Recommendations for Boys 2025, POSEIDON, and the WHO Laboratory Manual 2021. Oocyte-adequacy counselling triangulates three age-stratified models: modelled per-oocyte live-birth probability, real-world cumulative live birth following planned oocyte cryopreservation, and the number of mature oocytes required to bank three euploid blastocysts.
Results: The database contains 11 modules and more than 280 structured fields covering demographics and ovarian reserve; oncology

treatment; counselling and consent; pathway-specific FP procedures; laboratory quality control; oocyte maturity and survival; personalised cumulative-live-birth-rate estimation; adjuvant treatment; paediatric multidisciplinary-team records; cryostorage inventory; and long-term gonadal, reproductive, and obstetric outcomes. A live cyclophosphamide-equivalent-dose/gonadotoxicity calculator applies sex-specific PanCareLIFE thresholds. Follow-up records gonadal recovery and premature ovarian insufficiency using ESHRE 2024 criteria. The application functions offline in modern browsers, including Safari.
Discussion: Embedding PanCareLIFE, ESHRE, and WHO thresholds at data entry standardises FP data collection and supports counselling based on reproductive probability rather than oocyte count alone. Modelled and real-world estimates provide an explicit optimistic-to-conservative range. include in-session storage and reliance on oocyte-adequacy models derived from United States populations, requiring prospective local validation.
Conclusion: Praxa FP provides a guideline-embedded FP registry and point-of-care counselling tool deployable without additional infrastructure. Declaration of Conflict of Interest: The authors declare no conflicts of interest. Funding: No external funding was received for this study.

Keywords: fertility preservation, clinical database, oncofertility, patient counselling

OP-60. Medical Adequacy and Readability of ChatGPT and Gemini Responses to Patient Questions About Azoospermia

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Objective: Patients with azoospermia may consult artificial intelligence (AI) chatbots, yet the comprehensibility, accuracy, and adequacy of such information remain uncertain. This study evaluated the accuracy and readability of Large Language Model (LLM) responses to common patient questions in two prominent models.
Materials and Methods: Ten questions commonly posed by patients with azoospermia were identified by two urologists (B.H. and K.E.B.) (Figure OP-60-1). On July 25, 2026, each was submitted in a separate chat session to ChatGPT 5.6 Thinking and Gemini 3.6 Flash, with a standardized prompt to respond as a urologist in 200–210 words. The 20 anonymized responses were independently assessed by two urologists using a study-specific three-point Medical Adequacy Score (MAS): 1 = major scientific error or critical omission; 2 = generally accurate but requiring expert correction; 3 = adequate and consistent with current knowledge. Readability was assessed with Flesch Reading Ease (FRE), Flesch-Kincaid Grade Level (FKGL), and Simple Measure of Gobbledygook (SMOG) formulas; analyses used IBM SPSS Statistics version 24.0.
Results: None of the responses contained major medical errors or critical omissions. Mean medical adequacy scores for ChatGPT (2.75±0.42) and Gemini (2.45±0.43) did not differ significantly. Mean FRE scores remained below 29 for both models, denoting dense academic text, though Gemini yielded significantly lower readability (p=0.001). FKGL and SMOG scores showed both produced text requiring university-level education or higher, with Gemini demanding a significantly higher reading level (p<0.001, Table OP-60-1).
Discussion: Both models provided broadly accurate and medically adequate information, although Gemini's output was slightly more difficult to comprehend. Elevated reading grade levels and technical phrasing may limit patient understanding despite high accuracy, underscoring the role of healthcare professionals in tailoring AI-generated content to patients' health literacy.
Conclusion: AI chatbots may be helpful supplementary tools for patient education regarding azoospermia, but their output should be vetted by medical experts and not relied on as a sole source of information.

Keywords: Azoospermia, Artificial Intelligence, Large Language Models, Patient Education

Tab OP-60-1. Frequently Asked Questions About Azoospermia

NO.	QUESTION
1	What exactly does azoospermia mean?
2	Is this diagnosis definitive, and do I need any additional tests?
3	What could be the cause of azoospermia in my case?
4	Could it be caused by my diet, medications, or smoking?
5	Can my condition be treated with medication or surgery?
6	Does azoospermia affect my sexual function?
7	Is it still possible for me to have a child?
8	Can sperm be retrieved from the testes, and can we have a child through in vitro fertilization?
9	If no sperm can be found, what options do we have next?
10	If I have a child, could the same condition affect my child7

Tab OP-60-2. Medical Adequacy and Readability Results (n = 10) Values are presented as mean (SD). p: paired-samples t-test and exact Wilcoxon signed-rank test Vag$nal Bleed$ng $n Prepubertal G$rls: Et$ology and Cl$n$cal Evaluat$on

Outcome Measure	ChatGPT Mean (SD)	Gemini Mean (SD)	p Value
MAS	2.75 (0.42)	2.45 (0.43)	0.111
FRE	21.5 (8.12)	6.4 (8.72)	0.001
FKGL	14.3 (1.91)	18.7 (1.78)	< 0.001
SMOG	12.7 (0.71)	16.2 (1.30)	< 0.001

OP-61. Praxa Endo: An Open-Source, Multidisciplinary Clinical Database for Endometriosis — Integrating WERF-EPHect Phenotyping, #Enzian/rASRM Surgical Classification, and Endometriosis Fertility Index Prognostication

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Objective: Endometriosis care is multidisciplinary, encompassing gynaecology, urology, colorectal surgery, pain management, pelvic-floor physiotherapy, nutrition, and reproductive medicine. However, data capture across these domains is rarely standardised, limiting audit and prognostic counselling. We describe Praxa Endo, an open-source, single-file database integrating contemporary classifications and outcome instruments across the multidisciplinary pathway.
Materials and Methods: Praxa Endo is a standalone HTML5 application requiring no server or installation. Content and scoring logic were derived from WERF EPHect standardised phenotyping; ESHRE 2022 guidance; revised American Society for Reproductive Medicine staging; #Enzian 2021 classification with magnetic-resonance-imaging-based preoperative mapping; IDEA 2016 terminology; MUSA 2022 adenomyosis criteria; FIGO fibroid classification; UBESS surgical-complexity stratification; the Endometriosis Fertility Index;

and patient-reported outcome measures, including EHP-30, PFDI-20, LARS, and ICIQ, with numeric-rating-scale pain assessment.
Results: The database comprises 16 modules: dashboard; demographics; pain and symptoms; quality of life; physical examination; imaging; urology; colorectal; pelvic floor/physiotherapy; functional/dietitian; medications; surgical planning; surgery; fertility; longitudinal visits; and biobank. Integrated classification cards calculate rASRM stage, #Enzian compartmental scores, and the Endometriosis Fertility Index in real time. Automated safety alerts support surgical planning; for example, UBESS III bowel deep infiltrating endometriosis activates multidisciplinary-team and bowel-preparation flags. The Endometriosis Fertility Index follows the validated Adamson and Pasta 0–10 scale. The biobank module links clinical phenotypes with stored biological samples.
Discussion: Point-of-care integration of rASRM, #Enzian, MUSA, fertility prognostication, and patient-reported outcomes may harmonise multidisciplinary data collection and convert routine follow-up into prospectively structured cohort data. The single-file design permits use without dedicated information-technology infrastructure. Current limitations include in-session storage and absence of multi-user access control.
Conclusion: Praxa Endo provides an open-source multidisciplinary database for clinical care, audit, prognostic counselling, and endometriosis research registries. Declaration of Conflict of Interest: The authors declare no conflicts of interest. Funding: No external funding was received for this study.

Keywords: endometriosis, clinical database, endometriosis Fertility Index, multidisciplinary care

OP-62. Artificial Intelligence in IVF: Research Trends and Future Projections

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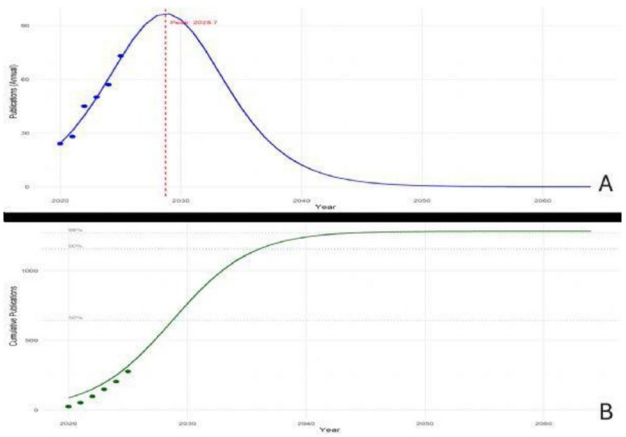
Objective: In vitro fertilization (IVF) is an established assisted reproductive technology, but its success remains dependent on patient characteristics, gamete and embryo quality, laboratory procedures, and variability in clinical and embryological evaluation. Artificial intelligence (AI) has increasingly been proposed as a tool to standardize assessments, reduce inter-observer variability, improve laboratory efficiency, and support individualized treatment planning. This bibliometric study aimed to evaluate the scientific literature on AI applications in IVF, determine temporal research trends, describe thematic transitions, and project future publication dynamics in this field.
Materials and Methods: Data were retrieved from the Web of Science Core Collection using a comprehensive search strategy combining IVF- and AI-related terms. English-language original research articles and reviews published between 2020 and 2025 in relevant categories, including Obstetrics & Gynecology and Reproductive Biology, were included. Animal studies, book chapters, conference proceedings were excluded. Overall, 285 documents were analyzed. Bibliometric analyses were conducted using the bibliometrix package in R, focusing on trending topics, thematic evolution, and projected growth patterns.
Results: The analysis revealed a clear chronological shift in research focus. In 2020–2021, studies mainly addressed microscopy, image processing, gene expression, and preliminary computational models. During 2022–2023, the field moved toward machine learning, embryo selection, implantation potential, and predictive modeling. From 2024 onward, research increasingly emphasized clinically relevant parameters, including intracytoplasmic sperm injection (ICSI), pregnancy outcomes, and treatment cycles. Thematic evolution demonstrated a transition from laboratory-based image analysis to clinically oriented decision-support systems. Price's Growth Model showed excellent goodness of fit ($R^2 = 0.969$), suggesting a peak in annual publication output in the late 2020s, followed by possible consolidation and standardization.
Conclusion: AI research in IVF has progressed rapidly from methodological development toward clinical integration. Future studies should prioritize personalized treatment models, optimization of ICSI protocols, live birth prediction, prospective randomized validation, and ethical and regulatory frameworks.

Keywords: Artificial intelligence, In vitro fertilization, Assisted reproductive technologies

Tab OP-62-1. Temporal Distribution of Trending Research Topics in AI and IVF (2020–2025) Note: Data extracted from bibliometric trend analysis of Web of Science publications (2020–2025)

Period	Primary Research Topics / Keywords	Clinical & Methodological Scope
2020 – 2021 (Early Phase)	Microscopy, Gene-expression, models	Early algorithmic validation, foundational image-processing models
2022 – 2023 (Consolidation)	Machine Learning, Embryo Selection, Implantation	Predictive modeling for embryo viability and implantation success
2024 – 2025 (Clinical Integration)	ICSI, Pregnancy Outcomes, Treatment Cycles	Targeted clinical outcome optimization and personalized decision-suppor

Fig OP-62-1. Technological life cycle modeling and growth dynamics of AI literature in IVF. (A) Annual publication distribution modeled by Price's Growth Law, projecting a peak output of approximately 97 publications per year around 2028–2029. (B) Cumulative publication growth curve demonstrating high goodness-of-fit ($R^2 = 0.969$) and current positioning in the exponential growth phase.



OP-63. Association Between Hysterosalpingography-Based Uterine Cavity Morphometry and Clinical Pregnancy Following IVF/Embryo Transfer

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Objective: This study evaluated whether hysterosalpingography (HSG)-derived uterine cavity morphometry is associated with clinical pregnancy after IVF/embryo transfer (ET) and adds information beyond established clinical and embryological predictors.
Materials and Methods: This retrospective cohort study included women undergoing IVF/ET at the Hacettepe University IVF Center between January 2017 and August 2025. Exclusions were age <18 or >45 years, congenital uterine anomalies, cavity-distorting pathology, uterine surgery between HSG and ET, and inadequate data (177 women, aged 20–42 years; first ET cycles only). Cavity dimensions, angular measurements, and geometric ratios were measured on HSG images by a single trained physician, with the Rubin cannula for internal calibration. The primary outcome was clinical pregnancy (intrauterine gestational sac on ultrasonography). Each parameter was added separately to a multivariable logistic model adjusted for female age, body mass index, embryo stage, embryo quality, and number transferred, with likelihood-ratio tests for incremental contribution.
Results: Clinical pregnancy occurred in 83/177 women (46.9%). Cavity dimensions, fundal indentation, inter-ostial distance, angular measurements, and geometric ratios did not differ between women with and without clinical pregnancy (all p>0.05), and none was independently associated after multivariable adjustment (all p>0.05). Adding any individual parameter to the baseline clinical model did not improve model fit (all likelihood-ratio p>0.05; Table OP-63-1).
Discussion: To our knowledge, this is the first study using the Rubin cannula as an internal calibration reference for standardized HSG-based uterine morphometry and relating it to clinical pregnancy after IVF/ET. Interpretation is limited by the retrospective design, selection by HSG availability and quality, and use of clinical pregnancy rather than live birth.
Conclusion: HSG-derived morphometric parameters were not independently associated with clinical pregnancy after IVF/ET and added no prognostic information beyond established clinical and embryological predictors. Their predictive value in this population may therefore be limited, and outcome-based definitions of clinically relevant uterine anatomy require prospective validation.

Keywords: hysterosalpingography, uterine morphometry, uterine cavity, embryo transfer

Tab OP-63-1. Adjusted Associations of Selected HSG-Derived Morphometric Parameters with Clinical Pregnancy and Their Incremental Contribution to the Baseline Clinical Model

HSG Morphometric Parameter	Adjusted OR	95% CI	p	LR χ^2	LR p
Uterine cavity area	0.982	0.840–1.147	0.817	0.054	0.817
Total uterine roof length (a+b)	0.816	0.523–1.272	0.369	0.810	0.368
Interostial distance	0.753	0.471–1.205	0.237	1.409	0.235
Total lateral wall length (c+d+e+f)	0.901	0.703–1.155	0.410	0.688	0.407
Total tubal angle	1.004	0.987–1.021	0.681	0.170	0.680
Total lateral wall angle	1.001	0.989–1.012	0.923	0.009	0.924
Interostial angle	0.995	0.978–1.012	0.567	0.330	0.566
Uterine cavity length (x)	0.763	0.463–1.259	0.290	1.134	0.287
Cervico-isthmic width (y)	0.193	0.026–1.438	0.108	2.644	0.104
Ratio of uterine roof length to total lateral wall length ((a+b)/(c+d+e+f))	0.454	0.061–3.375	0.441	0.599	0.439
Ratio of uterine roof length to uterine cavity length ((a+b)/x)	0.959	0.326–2.823	0.940	0.051	0.940
Ratio of uterine roof length to cervico-isthmic width ((a+b)/y)	1.076	0.859–1.347	0.525	0.559	0.455
Ratio of upper lateral wall length to lower lateral wall length ((c+f)/(d+e))	1.588	0.453–5.567	0.470	0.542	0.462
Ratio of mean lateral wall length to uterine cavity length ((c+d+e+f)/2x)	2.232	0.256–19.451	0.467	0.517	0.455
Ratio of total tubal angle to total lateral wall angle	1.821	0.010–339.950	0.822	0.006	0.822
Ratio of interostial angle to mean tubal angle	0.789	0.499–1.250	0.313	1.028	0.311
Ratio of interostial angle to mean lateral wall angle	0.506	0.078–3.262	0.474	0.517	0.472

Each HSG parameter was entered separately into a model adjusted for female age, BMI, embryo developmental stage, embryo quality, and number of embryos transferred. LR, likelihood ratio.

OP-64. A Low Estradiol-to-Oocyte Ratio Does Not Compromise IVF Outcomes: A Retrospective Cohort Study

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Objective: Serum estradiol (E2) on the day of trigger is frequently interpreted as a surrogate for oocyte quantity and quality. We investigated whether a low trigger-day E2-to-oocyte ratio compromises laboratory IVF outcomes.
Materials and Methods: This retrospective cohort study was conducted at the American Hospital, Istanbul, between 2020 and 2026. Women undergoing IVF/ICSI with a trigger-day E2-to-total-oocyte ratio below 150 pg/mL were included (n = 236). Patient characteristics,

stimulation variables, and embryology outcomes were analysed and compared with Vienna consensus benchmarks. Ethics approval was obtained from Koç University.
Results: Mean age was 35.3 ± 5.7 years (range 18–49) and mean duration of infertility 10.4 ± 21 months. The leading indications were diminished ovarian reserve (58%) and male-factor infertility (20%); median AMH was 1.05 ng/mL (0.01–13.9). Down-regulation used a GnRH antagonist (57%), progestin-primed ovarian stimulation (33%), or a GnRH-agonist long protocol (10%), with a mean total gonadotropin dose of 3140 ± 1244 IU. Triggering was performed with rhCG (78%), GnRH agonist (11%), or a dual trigger (11%). The median number of follicles > 14 mm at retrieval was 5 (1–19) and median trigger-day E2 was 894 pg/mL (49–3230). The median E2-to-oocyte ratio was 116 pg/mL (17–149.6; 25th–50th–75th percentiles 85 / 116 / 135). Median total and MII oocyte counts were 10 (1–45) and 9 (1–41). The median fertilization rate was 80% (0–100), mean cleavage rate 98% ± 11.6, and median blastocyst development rate 44% — all within Vienna consensus benchmarks.
Conclusion: A low trigger-day E2-to-oocyte ratio did not compromise fertilization, cleavage, or blastocyst development, all of which remained within international embryology benchmarks. The E2-to-oocyte ratio should not be regarded as an independent predictor of poor IVF laboratory outcomes.

Keywords: estradiol-to-oocyte ratio, in vitro fertilization, controlled ovarian stimulation, blastocyst development

OP-65. Spontaneous Pregnancy After IVF: Long-Term Incidence and Associated Clinical Factors in a Retrospective Cohort

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Objective: Some couples conceive naturally after IVF, yet how often this happens over the long term, and in whom, remains poorly defined. We determined the long-term incidence of spontaneous pregnancy after IVF and the clinical factors independently associated with natural conception.
Materials and Methods: In this retrospective cohort we followed 352 infertile patients who underwent IVF at a tertiary university centre between 2012 and 2016. Outcomes were collected in 2025 from institutional records and, where needed, structured telephone interviews. Spontaneous pregnancy was conception without any assisted reproductive technology after the last IVF cycle. We analysed time-to-pregnancy with Kaplan–Meier curves compared by the log-rank test, and identified independent predictors with multivariable logistic regression.
Results: Spontaneous pregnancy occurred in 81 of 352 patients (23.0%), and 69 (85.2%) of these ended in live birth. Most (90.1%) occurred within the first five years after the last cycle; cumulative incidence was 6.3% at two years, 17.1% at four years and 21.3% at five years, reaching a plateau after year six. Time-to-pregnancy differed by infertility aetiology (log-rank P<0.001) and type (P=0.010). Independent predictors are shown in Table OP-65-1: secondary infertility, anovulation and a pregnancy after the index IVF raised the odds of natural conception, whereas tubal factor, male factor, prior IVF history and a higher number of previous cycles lowered them.
Conclusion: Spontaneous pregnancy after IVF happens at a clinically meaningful rate and mostly within five years of treatment. Secondary infertility and anovulation carry a more favourable prognosis, while tubal and male factor infertility and a heavier prior treatment burden make natural conception less likely. These patterns can sharpen both fertility and contraceptive counselling after IVF.

Keywords: Spontaneous pregnancy, In vitro fertilization, Natural conception

Tab OP-65-1. Selected independent predictors of spontaneous pregnancy after IVF.

Variable	Adjusted OR (95% CI)	P value
Secondary infertility	2.03 (1.20–3.43)	0.008
Anovulation	2.05 (1.05–4.01)	0.036
Pregnancy after index IVF	1.73 (1.05–2.86)	0.032
Tubal factor infertility	0.08 (0.01–0.63)	0.016
Male factor infertility	0.17 (0.08–0.37)	0.001
Prior IVF history	0.30 (0.16–0.55)	0.001
Number of previous IVF cycles	0.48 (0.32–0.72)	0.001

Only statistically significant variables from the multivariable logistic regression model are shown. Reference categories were primary infertility for infertility type and unexplained infertility for infertility aetiology. aOR, adjusted odds ratio; CI, confidence interval.

OP-66. Low Ovarian Reserve Affects Oocyte Yield Rather Than Embryo Developmental Competence in ICSI Cycles

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Objective: Low ovarian reserve is associated with reduced ovarian response in assisted reproduction, but whether it also affects the developmental potential of retrieved oocytes is unclear. This study evaluated the relationship between ovarian reserve markers and embryological outcomes in ICSI cycles.
Materials and Methods: This retrospective study included 61 consecutive ICSI cycles at Okan University Hospital. Patient age, serum anti-Müllerian hormone (AMH), antral follicle count (AFC), numbers of retrieved oocytes, metaphase II (MII) oocytes, fertilized oocytes and blastocysts were recorded, and oocyte maturation, fertilization and blastulation rates were calculated. Correlations between ovarian reserve markers and embryological outcomes were assessed by Spearman's correlation. Patients with available AMH were divided at an AMH level of 1 ng/mL (<1 ng/mL and >=1 ng/mL) and compared using the Mann–Whitney U test. p<0.05 was considered statistically significant.
Results: The median age was 33 years (IQR: 30–38) and the median AMH level was 1.0 ng/mL. Blastocyst number correlated positively with AMH (r_s=0.567, p<0.001), AFC (r_s=0.625, p<0.001), retrieved oocyte number (r_s=0.708, p<0.001), MII oocyte number (r_s=0.742, p<0.001) and fertilized oocyte number (r_s=0.811, p<0.001). Women with AMH <1 ng/mL had significantly fewer retrieved oocytes, MII oocytes, fertilized oocytes and blastocysts than those with AMH >=1 ng/mL (all p<0.001). Oocyte maturation rate (p=0.265), fertilization

rate (p=0.577) and blastulation rate (p=0.849) were comparable between the groups.
Discussion: Women with diminished ovarian reserve produced fewer oocytes and fewer blastocysts. However, once an oocyte reached the MII stage, its ability to fertilize and develop into a blastocyst was similar to that in women with higher reserve, indicating that ovarian reserve mainly influences oocyte quantity rather than embryo developmental competence.
Conclusion: Low ovarian reserve was associated with a lower oocyte yield but did not adversely affect oocyte maturation, fertilization or blastulation rates. Developmental competence of retrieved oocytes appears preserved despite reduced ovarian response. Larger studies are needed to confirm these findings.

Keywords: AMH, diminished ovarian reserve, ICSI, blastocyst

OP-67. The effect of a reproductive health diet following failed IVF cycles on subsequent treatment outcomes: a prospective observational study

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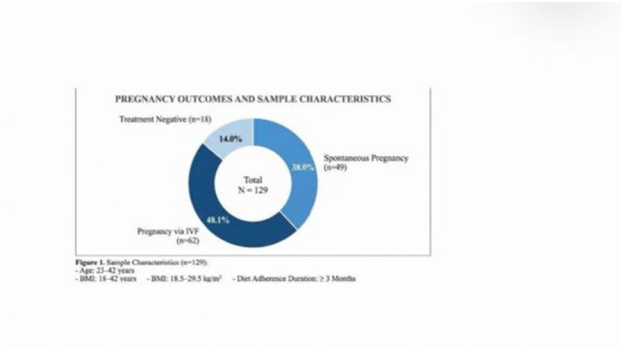
Objective: This study evaluated the effect of a reproductive health diet applied before treatment on pregnancy outcomes in subsequent IVF cycles in infertile women with at least one failed IVF/ICSI cycle.
Materials and Methods: This single-arm prospective observational study included 129 women. Demographic data, infertility history, previous IVF/ICSI cycle data (oocyte and metaphase II (MII) counts, fertilization, embryo number and quality, transfer, pregnancy outcome), nutritional history, biochemical parameters, medications and supplements were recorded. All participants received a reproductive health diet and food supplement plan tailored to their needs for at least 3 months. The anti-inflammatory program followed Mediterranean diet principles, rich in omega-3 fatty acids, whole grains, plant-based protein sources, oilseeds, and orange and purple colored vegetables and fruits. No additional treatments such as PRP, exosomal or intravenous therapies were given.
Results: The ages of the 129 participants ranged from 23–42 years and their body mass index (BMI) from 18.5–29.5 kg/m². After the diet, spontaneous pregnancy occurred in 50 participants and clinical pregnancy after assisted reproductive techniques (IVF) in 61, while transfer failure was negative in 18; the total pregnancy rate was 86%. Embryo quality improved in a significant portion of participants. In the first IVF/ICSI cycle, embryos of 68 participants developed between days 1–3 and 5th-day embryos were transferred to 61 participants; after the diet, 5th-day embryos were transferred to 68 and 3rd-day embryos to 19, suggesting more embryos reached the blastocyst stage.
Conclusion: Optimizing pre-treatment nutrition may be a modifiable lifestyle approach supporting reproductive outcomes. Without a control group, and with supplements recommended according to individual needs, the positive results cannot be attributed solely to the diet program. Larger, controlled, randomized clinical trials are needed to reveal its true effect on IVF/ICSI success; the diet could be included in standard preparation before assisted reproductive techniques as a low-cost, safe, and feasible approach.

Keywords: Embryo quality, Infertility, In vitro fertilization (IVF), Pregnancy outcomes

Fig OP-67-1. Sample characteristics and pregnancy outcomes in the 129 women who followed the reproductive health diet.



OP-68. Can estrogen supplementation for luteal phase support improve pregnancy rates in letrozole-stimulated frozen embryo transfer cycles?

Pınar Çağlar Aytaç*, Didem Alkaş, Gülşen Durdağ Doğan, Selçuk Yetkinel, Erhan Şimşek

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Objective: Letrozole-stimulated frozen-thawed embryo transfer (FET) cycles are increasingly used in assisted reproductive technology. Because circulating estradiol concentrations are relatively lower in these cycles than in natural or hormone replacement treatment cycles, the necessity of luteal-phase estrogen supplementation remains unclear. This study evaluated whether luteal-phase estrogen supplementation improves reproductive outcomes in letrozole-prepared FET cycles.
Materials and Methods: This retrospective cohort study was conducted at the IVF center of a university hospital between January 2020 and December 2024. A total of 667 letrozole-prepared FET cycles were included. Cycles without luteal-phase estrogen supplementation were assigned to Group I (n = 249), whereas cycles receiving luteal-phase estradiol supplementation were assigned to Group II (n = 418). Pregnancy outcomes were compared between the groups. The primary outcomes were clinical pregnancy and live birth rates. Secondary outcomes included implantation and miscarriage rates. A subgroup analysis was performed among patients with serum estradiol levels below the 25th percentile (<40 pg/mL) on the day of embryo transfer.
Results: Clinical pregnancy rates were comparable between Group I and Group II (65.5% vs. 69.6%, respectively; p = 0.15). Similarly, live birth rates did not differ significantly between the groups (49.0% vs. 50.6%; p = 0.37). No significant differences were observed in implantation rates (p = 0.27) or miscarriage rates (17.3% vs. 19.1%; p = 0.80). In the subgroup of patients with serum estradiol levels below 40 pg/mL on the day of embryo transfer, luteal-phase estrogen supplementation was not associated with improved clinical pregnancy or live birth rates (all p > 0.05).
Conclusion: In those frozen embryo transfer cycles stimulated with letrozole, circulating estrogen levels throughout the cycle may be considerably lower than in natural or hormonally prepared cycles. Estrogen replacement or luteal phase support in letrozole-stimulated frozen embryo transfer cycles does not improve pregnancy outcomes, even in cases with estrogen levels below physiological thresholds.

Keywords: Letrozole, frozen embryo transfer, IVF, luteal phase

OP-69. Intensification of Combined Vaginal and Subcutaneous Progesterone Support May Not Improve Live Birth Rates in HRT-FET Cycles

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Objective: Combined vaginal and subcutaneous progesterone luteal phase support (LPS) is used in hormone replacement therapy frozen embryo transfer (HRT-FET) cycles; however, the clinical benefit of progressively intensifying a fixed-dose combined progesterone regimen remains uncertain. We evaluated whether sequential intensification of combined LPS was associated with improved reproductive outcomes.
Materials and Methods: This single-center retrospective cohort study included women undergoing their first HRT-FET with a single day-5/6 blastocyst of pre-thaw Gardner morphology ≥3BB between January 2021 and September 2025. Patients with uterine pathology or untreated hydrosalpinx were excluded. Three sequential combined LPS regimens were compared: i) micronized vaginal progesterone (MVP) 600 mg/day plus 25 mg subcutaneous progesterone (SC-P) every 3 days; ii) MVP 800 mg/day plus SC-P 25 mg every 3 days; iii) MVP 800 mg/day plus SC-P 25 mg daily. Protocol selection was based on clinician preference. After propensity-score matching, 31 cycles were included in each group. The primary outcome was live birth rate (LBR). Secondary outcomes were clinical pregnancy rate (CPR) and miscarriage rate (MR). Serum progesterone concentrations on ET day were evaluated as an exploratory outcome in cycles for which measurements were available.
Results: Baseline age, BMI, infertility duration, previous childbirth, and blastocyst quality were comparable among groups. Across the three regimens, LBR was 45.2%, 41.9%, and 38.7%, respectively (p=0.964). CPR was 54.8%, 54.8%, and 58.1% (p=1.000), while MR per clinical pregnancy was 17.6%, 23.5%, and 33.3% (p=0.619). Median [IQR] serum progesterone concentrations on ET day were 9.9 [6.4–12.1] ng/mL (n=24), 11.0 [9.4–13.9] ng/mL (n=10), and 24.1 [22.0–33.0] ng/mL (n=25), respectively (p<0.001).
Conclusion: In women undergoing their first HRT-FET cycle with a single blastocyst of grade ≥3BB and no relevant uterine pathology, intensification of combined MVP and SC-P LPS did not improve live birth or clinical pregnancy rates despite substantially increasing serum progesterone concentrations. Larger prospective studies are required to confirm these findings.

Keywords: Hormone replacement therapy, Frozen embryo transfer, Luteal phase support, Combined LPS

OP-70. Reproductive Outcomes Following Autologous Oocyte Vitrification-Warming versus Fresh Oocyte IVF in POSEIDON Group 4 Patients: A Matched Cohort Study

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Objective: To compare live-birth rates (LBR) following autologous oocyte cryopreservation (AOC)-warming versus fresh-oocyte IVF in POSEIDON group 4 patients and assess whether vitrification-warming compromises reproductive outcomes.
Materials and Methods: This retrospective matched cohort study included POSEIDON group 4 patients treated between 2014 and 2025. Group A comprised 24 patients with diminished ovarian reserve who underwent AOC and subsequently returned for warming. Group B included 48 patients undergoing fresh-oocyte IVF and fresh embryo transfer, matched 2:1 for female age and numbers of metaphase-II (MII) and two-pronuclear (2PN) oocytes. Only first cycles reaching embryo transfer were included. The primary outcome was LBR per patient.
Results: Median age was 39 years in both groups (P=0.884), and 2PN numbers were comparable (4 versus 3; P=0.395), although Group A had more MII oocytes (5.5 versus 4.0; P=0.042). Oocyte survival was 90.9±14.5%. Fertilisation rates were 79.9±18.5% versus 87.0±17.2% (P=0.095), and clinical pregnancy rates were 41.7% versus 43.8% (P=1.000). Miscarriage was more frequent after warming (25.0% versus 6.3%; P=0.052). LBR was 16.7% versus 37.5% (odds ratio 0.33, 95% confidence interval 0.09–1.13; P=0.103), an absolute difference of 20.8 percentage points.
Discussion: AOC-warming was associated with preserved clinical pregnancy but lower LBR, primarily reflecting higher miscarriage. Whether this relates to vitrification-warming or older age at embryo transfer remains uncertain. The small warming cohort limited statistical power.
Conclusion: In POSEIDON group 4 patients, vitrification-warming may affect pregnancy continuation rather than implantation. Larger prospective studies are required before definitive conclusions can be drawn. Declaration of Conflict of Interest: The authors declare no conflicts of interest. Funding: No external funding was received for this study.

Keywords: Oocyte cryopreservation, diminished ovarian reserve, POSEIDON group 4, oocyte vitrification

OP-71. Abstract withdrawn

OP-72. IVF pregnancy following a trachelectomy, failed abdominal cerclage, and delivery at 34 weeks

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Introduction: Radical trachelectomy preserves fertility in early-stage cervical cancer but carries high risks of cervical insufficiency and preterm delivery. We present a successful live birth following embryo transfer in a post-trachelectomy patient after planned abdominal cerclage was abandoned due to dense intra-abdominal adhesions.
Case Presentation: A 38-year-old woman with a history of radical trachelectomy, bilateral hydrosalpinges, and low ovarian reserve (AMH 0.73 ng/mL) underwent IVF using a combination of fresh and previously cryopreserved oocytes. Following laparoscopic tubal ligation and treatment of a subsequent hematometra via hysteroscopic cervical dilation, a second frozen embryo transfer (5BB blastocyst)

resulted in pregnancy. At 12 weeks, an 8-mm neocervical fibrous band was identified. Laparotomy for abdominal cerclage in October 2025 was aborted due to extensive intestinal adhesions. Management relied solely on conservative measures: vaginal progesterone (200 mg/day), low-molecular-weight heparin, and strict bed rest. At 34+6 weeks of gestation, the patient presented with premature rupture of membranes and delivered a 3010 g male infant via cesarean section. Following a brief 4-day NICU stay, mother and infant were discharged in healthy condition.
Conclusion: When abdominal cerclage is technically unfeasible after radical trachelectomy due to post-surgical adhesions, conservative management with vaginal progesterone, activity restriction, and close surveillance—supported by residual neocervical fibrotic tissue—can effectively support a pregnancy to a late preterm live birth.

Keywords: abdominal cerclage, cervical cancer, fertility-sparing surgery, hematometra

OP-73. Retrospective Evaluation of Reproductive and Obstetric Outcomes Following Hysteroscopic Adhesiolysis in Patients with Asherman Syndrome

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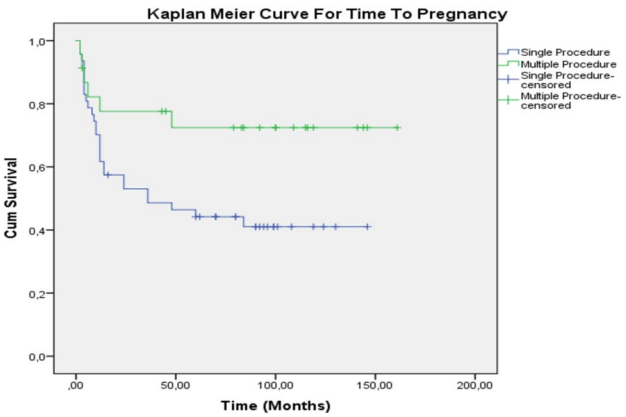
Objective: The aim of this study was to evaluate the clinical characteristics of patients diagnosed with Asherman syndrome who underwent hysteroscopic adhesiolysis at our institution and to investigate their postoperative reproductive and obstetric outcomes. In addition, we aimed to assess the association between the severity of intrauterine adhesions and postoperative pregnancy outcomes, as well as to identify potential prognostic factors that may influence treatment success.
Materials and Methods: The study was performed retrospectively. Patient characteristics, clinical and surgical findings, and pregnancy outcomes were obtained from the hospital electronic medical records. Statistical analyses were performed using SPSS 24.0.
Results: A total of 70 infertile patients who underwent hysteroscopic adhesiolysis were included in the study. The postoperative pregnancy rate was 47.1%, with 60.6% of pregnancies resulting in live birth and 57.6% in term live birth. Patients who achieved pregnancy were significantly younger than those who did not. The pregnancy rate was significantly higher in patients who underwent a single hysteroscopic procedure than in those requiring multiple procedures. Kaplan–Meier analysis demonstrated that the time to conception was significantly shorter in patients who underwent a single hysteroscopic procedure compared with those who required multiple procedures. In univariate logistic regression analysis, age was not significantly associated with pregnancy, whereas undergoing a single hysteroscopic procedure was identified as an independent predictor of pregnancy.
Conclusion: In conclusion, multiple hysteroscopic procedures were associated with lower pregnancy rates and a longer time to conception, whereas the ASRM stage, localization of intrauterine adhesions, and the status of uterine cavity restoration were not associated with pregnancy outcomes. These findings suggest that reproductive outcomes are determined not only by the severity of intrauterine adhesions but also by the combined influence of multiple factors. These findings highlight the multifactorial nature of reproductive outcomes and warrant validation in larger prospective studies.

Keywords: Intrauterine adhesion, Infertility, Hysteroscopy

Fig OP-73-1. Kaplan–Meier Analysis of Time to Pregnancy According to the Number of Hysteroscopic Procedures



OP-74. Prophylactic laparoscopic transabdominal cerclage following failed McDonald cerclage in an IVF pregnancy

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Introduction: Cervical insufficiency can lead to second-trimester pregnancy loss despite transvaginal cerclage. Laparoscopic transabdominal cerclage (L-TAC) offers an alternative following unsuccessful vaginal cerclage. We describe prophylactic L-TAC during an IVF pregnancy after a previous loss despite McDonald cerclage.
Case Presentation: A 35-year-old woman with nine years of infertility conceived through IVF after treatment of intrauterine adhesions and thin endometrium. At 18 weeks of gestation, transvaginal ultrasonography revealed a cervical length of 15 mm, prompting McDonald cerclage. Previable preterm premature rupture of membranes occurred at 20 weeks, followed by persistent anhydramnios. The pregnancy was terminated at 20 weeks and 6 days. Following restoration of the uterine cavity, another IVF cycle resulted in pregnancy. Given the previous loss despite transvaginal cerclage, prophylactic L-TAC was undertaken at 11 weeks and 5 days. Under general anesthesia, laparoscopic access was established and the vesicouterine peritoneum was opened. Exploration revealed posterior uterine venous varicosities near the uterosacral ligament. Both uterine arteries were carefully lateralized. Mersilene tape was passed from posterior to anterior, medial to the uterine arteries, at the internal cervical os and tied anteriorly. The peritoneum was closed over the tape to achieve complete reperitonealization. No intraoperative or early postoperative complications occurred (Figure OP-74-1).
Discussion: This case illustrates the use of prophylactic L-TAC after pregnancy loss despite McDonald cerclage in a patient undergoing IVF. Laparoscopic visualization supported identification of the uterine vessels and positioning of the tape at the cervico-isthmic level. The observed venous varicosities highlighted the importance of careful anatomical assessment during dissection. The absence of early complications documents perioperative feasibility in this patient; subsequent obstetric outcomes were not yet available at the time of reporting.

Conclusion: Prophylactic L-TAC may be considered after unsuccessful transvaginal cerclage in selected patients. This report describes uncomplicated placement during early pregnancy, but longer follow-up is required to assess pregnancy prolongation, delivery timing, and neonatal outcomes.

Keywords: cervical insufficiency, in vitro fertilization, intrauterine adhesions, transabdominal cerclage

Fig OP-74-1. Intraoperative laparoscopic views during transabdominal cerclage (A–C).



OP-75. Clinical Characteristics and Pregnancy Outcomes of Spontaneous Pregnancies in Women with Primary Ovarian Insufficiency: A Systematic Review

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Objective: Primary ovarian insufficiency (POI) markedly reduces fertility; however, intermittent residual ovarian activity may permit spontaneous conception. We aimed to characterize women who conceived spontaneously after POI, with particular emphasis on clinical and biochemical characteristics, hormone replacement therapy (HRT) exposure, and pregnancy outcomes.
Materials and Methods: This systematic review was conducted according to PRISMA 2020. PubMed/MEDLINE, Embase, Scopus, and the Cochrane Library were searched for studies published between January 2000 and June 2026. Case reports, case series, and eligible cohort studies reporting pregnancy after established POI were included. Pregnancies achieved through ovulation induction, in vitro fertilization, intracytoplasmic sperm injection, oocyte donation, or other fertility-enhancing interventions were excluded from the primary analysis. HRT alone was not considered a fertility treatment. Demographic characteristics, POI etiology, biochemical findings, HRT exposure, and pregnancy outcomes were extracted.
Results: Sixty-five pregnancy records from 64 women were identified; the primary analysis included 46 spontaneous pregnancies in 38 women. Mean age at POI diagnosis and conception was 27.8 and 31.0 years, respectively. Etiology was idiopathic/undetermined or mixed in 63.2%, iatrogenic in 23.7%, genetic/metabolic in 10.5%, and autoimmune in 2.6%. Numeric initial FSH values were available for 32 women; median FSH was 63.5 IU/L (range, 15.0–128.0), and 84.4% had FSH ≥40 IU/L. HRT exposure before or at conception was reported in 60.5% of women. Of 46 pregnancies, 34 resulted in live birth (73.9%), nine in miscarriage, fetal loss, or elective termination (19.6%), and three had unknown outcomes. Among pregnancies with known outcomes, the live-birth proportion was 79.1%.
Conclusion: Spontaneous conception after POI is possible despite markedly elevated FSH levels, supporting intermittent residual ovarian activity. HRT exposure was frequent, although these descriptive data cannot establish a causal relationship with conception. Published pregnancy outcomes appear favorable, but should be interpreted cautiously because of reporting and publication bias.

Keywords: primary ovarian insufficiency, spontaneous pregnancy, natural conception, hormone replacement therapy

Tab OP-75-1. Clinical characteristics and pregnancy outcomes of spontaneous pregnancies after primary ovarian insufficiency

Characteristic	Result
Women in primary analysis	38
Spontaneous pregnancies	46
Mean age at POI diagnosis	27.8 years
Mean age at conception	31.0 years
Any HRT exposure before/at conception	23/38 (60.5%)
Active HRT at ≥1 target conception	16/38 (42.1%)
Numeric initial FSH available	32/38 (84.2%)
Median initial FSH (range)	63.5 (15.0–128.0) IU/L
Initial FSH ≥40 IU/L	27/32 (84.4%)
Live birth	34/46 (73.9%)
Live birth among known outcomes	34/43 (79.1%)

OP-76. Spontaneous Pregnancy and Live Birth During Hormone Replacement Therapy in a Woman with Premature Ovarian Insufficiency: A Case Report

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Introduction: Premature ovarian insufficiency (POI) causes amenorrhea, hypergonadotropic hypogonadism, and severe subfertility, though sporadic follicular development can persist. We report a spontaneous pregnancy and live birth during sequential hormone replacement therapy (HRT) in a woman with established POI following prolonged amenorrhea.
Case Presentation: A 31-year-old woman with chronic oligomenorrhea underwent fertility preservation using modified natural cycle IVF. Over two years, three retrieval attempts (lead follicles 15–17 mm; peak estradiol 150–198 pg/mL) yielded zero oocytes despite follicular flushing. Following two years of total amenorrhea, repeat evaluation confirmed POI (FSH 60 IU/L, estradiol <5 pg/mL, zero antral follicles, 1 mm endometrial thickness). Sequential HRT with oral estradiol valerate and norgestrel was initiated. In the 12th month of HRT, withdrawal bleeding failed to occur during the pill-free interval. Transvaginal ultrasound confirmed an intrauterine gestational sac (8 mm) with a yolk sac. The gestation was uneventful, culminating in the delivery of a healthy infant at 39 weeks of gestation.
Conclusion: Functional follicles can persist in POI, allowing unpredictable ovulation even after years of amenorrhea and failed oocyte retrieval attempts. Sequential HRT replaces endogenous estrogen while permitting sporadic follicular development. Patients should be counseled on the potential for spontaneous conception, and absent withdrawal bleeding should prompt immediate pregnancy evaluation.

Keywords: Premature ovarian insufficiency, spontaneous pregnancy, hormone replacement therapy, residual follicular activity

OP-77. The efficacy of ovulation induction, with either letrozole or recombinant FSH, and intrauterine insemination in women with endometrioma: a propensity score-matched analysis

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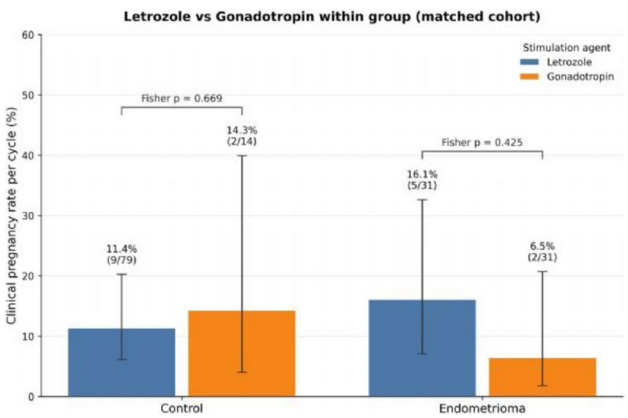
Objective: We aimed to evaluate the efficacy of ovulation induction (OI), with either letrozole or recombinant follicle stimulating hormone (rFSH), and intrauterine insemination (IUI) in subfertile women with endometrioma compared to women with unexplained infertility.
Materials and Methods: The study group of this retrospective cohort study included subfertile women with endometriomas undergoing OI and IUI cycles. A control group of patients with unexplained infertility was established via 1:2 Propensity Score Matching (PSM) on the basis of age, body mass index (BMI) and anti-Müllerian hormone (AMH) levels. The primary outcome measure was the Clinical Pregnancy Rate (CPR). Secondary outcomes included numbers of follicles >=14mm and >=17mm.
Results: A total of 30 subfertile patients with endometrioma who underwent 62 IUI treatment cycles and 207 patients with unexplained infertility who underwent 252 IUI treatment cycles were included in the analysis. A final cohort of 30 patients with endometrioma (62 cycles) and 60 matched controls (93 cycles) were analyzed. CPRs were comparable; 11.3% (7/62) in the endometrioma group and 11.8% (11/93) in the control group. Similarly, the mean number of follicles >17mm and >14 mm did not differ significantly. In multivariable analyses, none of the tested variables (stimulation agent, diameter of largestest endometrioma, and bilaterality of endometrioma) were independently associated with CPR.
Conclusion: CPRs following OI+IUI were comparable between women with endometrioma and matched controls, falling within the expected range for this treatment. These findings suggest that OI+IUI success is preserved among women with endometrioma, although larger studies are required to rule out small absolute differences.

Keywords: Endometrioma, Intrauterine insemination, Letrozole, Ovulation induction

Fig OP-77-1. Comparison of CPRs with different stimulation agents in endometrioma and control groups.



OP-78. Vaginal bleeding in prepubertal girls: etiology and clinical evaluation

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Objective: Prepubertal vaginal bleeding is uncommon but clinically important, with a broad differential ranging from vulvovaginitis and vaginal foreign bodies to endocrinopathies and malignancies. This study investigated the etiology and clinical evaluation of non-traumatic vaginal bleeding in prepubertal girls aged 0–10 years.
Materials and Methods: Girls aged 0–10 years with breast development below Tanner stage 3 presenting with vaginal bleeding between 2017 and 2026 were retrospectively reviewed; those with trauma or suspected physical or sexual abuse were excluded. Records were reviewed for age, clinical history, examination findings, diagnostic work-up (including examination under sedation with vaginoscopy, when indicated) and etiology.
Results: 41 cases were identified, with a mean age at onset of bleeding of 6.9±2.4 years. Eight patients (19%) had vulvovaginitis and 13 (31%) a hormonal etiology. A functional ovarian cyst was the cause in seven girls aged 6 months to 10 years, presenting with transient bleeding, elevated serum estradiol (23–500 pg/mL), and suppressed gonadotropins. A three-year-old girl had a juvenile granulosa cell tumor of the ovary with peripheral precocious puberty. The remaining five had peripheral precocious puberty and normal imaging; environmental hormonal exposure was suspected but unconfirmed. 14 patients (34%) underwent examination under sedation with vaginoscopy, identifying four vaginal foreign bodies, four benign lesions (including a cervical polyp and a benign Müllerian papilloma), and one vaginal yolk sac tumor. Nine patients (21%) aged 7 to 10 years had isolated premature menarche after normal hormonal evaluation and normal imaging (with or without vaginoscopy) and exclusion of other causes (Table OP-78-1).
Conclusion: A thorough clinical history and physical examination, with hormonal evaluation, imaging, and vaginoscopy when indicated, are essential to exclude conditions requiring urgent intervention. Functional ovarian cysts appear to be a relatively common cause, readily identified by basic hormonal evaluation and imaging. Isolated premature menarche is another benign diagnosis of exclusion, typically with a few self-limited episodes that resolve spontaneously.

Keywords: Isolated premature menarche, Precocious puberty, Prepubertal bleeding, Vulvovaginitis

Tab OP-78-1. Underlying diagnoses in patients with prepubertal vaginal bleeding

Diagnosis	Mean age (years±SD)
Isolated premature menarche (n=9)	8.8±0.6
Vulvovaginitis (n=8)	5.9±0.8
Functional ovarian cyst (n=7)	5.9±3.1
Foreign body (n=4)	8.2±0.8
Malignancy (n=2)	2.5±0.5
Other benign or unidentified conditions (n=12)	6.9±2.3

OP-79. Adolescents with Heavy Menstrual Bleeding and Severe Anemia Requiring Urgent Management

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Objective: Heavy menstrual bleeding (HMB) is common in adolescents, usually from anovulatory cycles secondary to immaturity of the hypothalamic–pituitary–ovarian (HPO) axis; bleeding disorders (BDs) and, more rarely, gynecological pathologies contribute less often. This study investigated underlying causes, hospitalization and blood transfusion rates, and treatment modalities in adolescents evaluated for HMB in the emergency setting with hemoglobin levels ≤8 g/dL.
Materials and Methods: Retrospective review of adolescents aged 10–18 years who presented as emergencies with HMB between 2017 and 2026 and had hemoglobin levels ≤8 g/dL. Menstrual history, bleeding symptoms, hospitalization, blood transfusion, treatment modalities, screening for BDs, and other underlying pathologies were evaluated.
Results: 55 adolescents evaluated as emergencies for HMB met the inclusion criteria. Mean age at symptom onset was 13.7±2.1 years; thirty-five patients (65%) were within two years of menarche. Mean hemoglobin at presentation was 6.4±1.3 g/dL; 67% required hospitalization and 60% received packed red blood cell transfusions (Table OP-79-1). Among transfused patients, mean hemoglobin (Hb) was 5.1±0.9 g/dL. All received hormonal therapy: combined oral contraceptives in 49 patients, high-dose progestins in 6. Antifibrinolytic agents were additionally required in 8 patients; none required surgical intervention. Congenital and acquired BDs were diagnosed in 7 (12.7%) and 2 (3.6%) adolescents, respectively. Adenomyosis was confirmed using targeted ultrasonography and magnetic resonance imaging (MRI) in 5 patients (9%) with HMB difficult to control initially and severe dysmenorrhea.
Conclusion: HMB in adolescents, particularly in the first years after menarche, may require urgent hospitalization and blood transfusion, yet even severe anemia can often be managed successfully with timely evaluation and appropriate medical therapy. Transfusion based solely on Hb values should be avoided, as these respond rapidly to medical treatment. Although HPO axis immaturity remains the most common cause and congenital BDs are identified in up to 12% of cases, gynecological pathologies should also be considered, particularly with refractory HMB.

Keywords: Adenomyosis, Adolescent gynecology, Heavy menstrual bleeding, Bleeding disorders

Tab OP-79-1. The general characteristics of the patients

Parameter	Value
The mean age at menarche (years)	11.7±1.5
The mean age at the onset of symptoms (years)	13.7±2.1
The mean hemoglobin value (g/dL)	6.4±1.3
The rate of hospitalization (n,%)	37 (67)
The rate of blood transfusion (n,%)	33 (60)

OP-80. Stepwise hysteroscopic treatment guided by a Foley catheter balloon in a case of complex Müllerian anomaly

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Introduction: A complete uterine septum with a double cervix and a longitudinal non-obstructive vaginal septum (ESHRE/ESGE U2bC2V1) is an uncommon and diagnostically challenging Müllerian anomaly in which preoperative anatomical characterization may remain difficult despite magnetic resonance imaging and ultrasonography. We present a case in which a Foley catheter balloon placed in the contralateral uterine cavity guided safe hysteroscopic septum resection.
Case Presentation: A 29-year-old nulliparous woman presented with infertility and dysmenorrhea. Examination revealed a well-developed right cervix, a hypoplastic left cervix, and a non-obstructive longitudinal vaginal septum. Two-dimensional ultrasonography showed two cervical canals without defining the uterine anatomy, and hysterosalpingography suggested a right-sided unicornuate uterus because of marked uterine deviation. Owing to discordant imaging, combined hysteroscopic and laparoscopic evaluation was performed. Laparoscopy showed a normal external uterine contour and normal adnexa; hysteroscopy revealed a complete uterine septum extending from the cervical canal into the cavity. To clarify the anatomy, a Foley catheter was inserted into the contralateral cervical canal and inflated with 10 mL of saline. The balloon produced a distinct protrusion of the septum, confirming a complete septum rather than two separate cavities. Guided by this landmark, stepwise septum resection was performed with a T-shaped resectoscope. As resection progressed, the visible Foley catheter confirmed restoration of a single cavity. The vaginal septum was excised during the same procedure. Follow-up hysterosalpingography two months later showed a single uterine cavity with bilateral tubal patency.
Conclusion: Complex Müllerian anomalies may be difficult to classify before surgery, particularly when cervical anomalies coexist, making intraoperative assessment crucial for the surgical strategy. The Foley balloon provided dynamic protrusion of the septum, allowing precise identification of the optimal incision plane while potentially reducing the risk of uterine wall injury. The technique is simple, inexpensive, reproducible, needs no additional imaging equipment, and appears a practical and safe option in selected patients when preoperative imaging is inconclusive.

Keywords: complete uterine septum, Foley catheter balloon, hysteroscopy, Müllerian anomalies

OP-81. Investigation of Cardiac and Metabolic Risk Factors and Early Endothelial Dysfunction Parameters in Patients with Polycystic Ovary Syndrome

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Objective: Polycystic ovary syndrome (PCOS) is a condition associated with low-grade chronic inflammation. The aim of this study was to examine changes in parameters associated with endothelial dysfunction, specifically flow-mediated dilation (FMD), ventricular strain, echocardiographic changes, pericardial adipose tissue, uric acid, CRP, and erythrocyte sedimentation rate in patients with PCOS compared to a control group.
Materials and Methods: The study included 33 patients with PCOS and 26 patients without PCOS, aged 25–35 years. Levels of LH, FSH, estradiol, prolactin, TSH, DHEA-S, CRP, uric acid, sedimentation rate, triglycerides, total cholesterol, HDL, LDL, and VLDL were measured and recorded. A 75 g oral glucose tolerance test (OGTT) was performed. Measurements included flow-mediated dilation (FMD),

ejection fraction, left ventricular end-diastolic and end-systolic diameters, and the dimensions of the left atrium, right ventricle, right atrium, and interventricular septum. Left atrial strain, global left ventricular strain, E-wave, A-wave, and pericardial adipose tissue were also calculated.
Results: The ejection fraction was found to be significantly lower in the PCOS group compared to the control group (p=0.04). Weak but statistically significant correlations were observed between cardiac chamber dimensions and BMI, waist circumference, and systolic and diastolic blood pressure.
Conclusion: Cardiovascular system alterations in patients with PCOS may manifest as either overt or subclinical changes. Further studies are needed regarding the routine assessment of the cardiovascular system in PCOS.

Keywords: PCOS, echocardiography, flow-mediated dilation, strain

Selected abstracts from the 14th Congress of Turkish Foundation of Reproductive Medicine: Poster presentations [PP-01–PP-17]

14th Congress of Turkish Foundation of Reproductive Medicine, Antalya, Turkiye, 19–22 November 2026

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PP-01. Effects of Ruxolitinib-mediated JAK/STAT inhibition on viability, cell cycle progression, and apoptosis in TCam-2 testicular seminoma cells

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Objective: Testicular cancer, mostly germ cell tumors and particularly seminomas, is the most common malignancy in males aged 15–40 years. JAK/STAT signaling regulates proliferation, differentiation, and survival and is dysregulated in several cancers. The effects of Ruxolitinib, an approved JAK1/JAK2 inhibitor targeting the JH1 domain, in seminoma remain unclear. We investigated its effects on viability, apoptosis, necrosis and cell cycle progression in TCam-2 seminoma cells.
Materials and Methods: TCam-2 cells (RPMI 1640, 10% FBS, 1% penicillin/streptomycin, 37°C, 5% CO2) were treated with Ruxolitinib (5–80 µM) or DMSO for 48 h. MTT assay measured viability and IC25 and IC50 values. Apoptosis and necrosis were evaluated by Annexin V-FITC/propidium iodide staining and cell cycle by DNA-content flow cytometry. Viability and cell death data were analyzed by one-way ANOVA and cell cycle data by two-way ANOVA, each with Tukey's test ($p<0.05$).
Results: Ruxolitinib significantly reduced viability at 40 µM ($p<0.01$) and 80 µM ($p<0.001$). IC25 and IC50 were 25 and 41 µM, respectively, and used for subsequent analyses. At 41 µM, live cells decreased and early apoptosis increased ($p<0.05$). Late apoptosis increased at both 25 and 41 µM ($p<0.05$ and $p<0.001$, respectively). Necrosis increased at 25 µM ($p<0.001$) and 41 µM ($p<0.05$). G0/G1 arrest occurred at 41 µM ($p<0.01$) with reduced G2/M ($p<0.05$), whereas 25 µM did not significantly alter the cell cycle.
Discussion: At IC25, the response was mainly late apoptosis and necrosis; at IC50, Ruxolitinib was both cytotoxic and cytostatic, with early and late apoptosis, necrosis, G0/G1 accumulation and reduced G2/M progression. Higher exposure thus adds cell cycle arrest to predominantly terminal cell death. These relatively high concentrations provide in vitro proof of concept requiring validation with pathway-specific analyses, combination treatments, and non-malignant testicular controls.
Conclusion: Ruxolitinib reduces viability and induces dose-dependent apoptosis, necrosis, and G0/G1 arrest in TCam-2 cells, supporting further investigation of JAK/STAT signaling as a potential therapeutic target in seminoma.

Keywords: TCam-2, testicular seminoma, Ruxolitinib, JAK/STAT signaling pathway

PP-02. The impact of smoking and body mass index on sperm DNA fragmentation: Prospective cohort study

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Objective: Few studies have examined the association of sperm DNA fragmentation (SDF) with smoking or high body mass index (BMI), both major public health concerns. We investigated their potential impact on SDF.
Materials and Methods: We report preliminary data from 106 patients in an ongoing prospective cohort study at a private IVF center since June 2024 (IRB No: GTB 010524). BMI and smoking status of male partners of infertile couples were recorded at the initial visit by face-to-face questionnaire. Semen was obtained by masturbation under standardized conditions. SDF was assessed using the TUNEL assay (in situ cell death detection kit®, Roche, Switzerland).
Results: The mean ± SD SDF index was 16.18 ± 15.57 in patients aged <35 years and 22.03 ± 16.33 in those aged >=35 years ($p = 0.062$). By standard BMI categories, 16 patients were of normal weight (18.5–24.99 kg/m²), 50 were overweight (25–29.99 kg/m²), 25 had class I obesity (30–34.99 kg/m²), and 15 had class II obesity (35–39.99 kg/m²), with mean ± SD SDF index values of 22.38 ± 18.97, 17.68 ± 14.72, 17.45 ± 14.47, and 22.35 ± 20.33, respectively. Values appeared higher in the normal-weight and class II obesity groups, but not significantly ($p = 0.597$). Light smokers currently smoked 1–19 cigarettes/day ($n = 19$) and heavy smokers >=20 cigarettes/day ($n = 41$). Mean ± SD SDF index values were 17.92 ± 16.29, 19.60 ± 12.08, and 19.93 ± 17.80, respectively. Values tended to be higher in smokers, but not significantly ($p = 0.835$).
Conclusion: The sample is small and preliminary, and the TUNEL test has methodological constraints and no universally established threshold for high SDF, limiting comparability. These preliminary data showed no association between smoking status or BMI and the SDF index. Both factors should nevertheless be considered in counseling before assisted reproductive treatment, as they adversely affect fertility through various mechanisms.

Keywords: Sperm DNA fragmentation, smoking, BMI

PP-03. Progesterone receptor component 1 (PGRMC1) and hormonal relationships in cumulus cells of PCOS patients

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Objective: Progesterone Receptor Membrane Component 1 (PGRMC1), a single transmembrane protein highly expressed in ovarian granulosa and luteal cells, regulates follicular dynamics, cell

survival, and metabolic balance. It suppresses granulosa cell apoptosis by repressing pro-apoptotic genes (Bad, Caspase-3, Caspase-4) and helps regulate granulosa cell division. In polycystic ovary syndrome (PCOS), abnormal PGRMC1 expression disrupts intrafollicular glucolipid metabolism. We aimed to evaluate PGRMC1 expression in cumulus granulosa cells by immunohistochemistry with H-score in PCOS and control cases, and its relationship with P4, AMH, and other hormonal parameters.
Materials and Methods: This prospective study comprised 20 female patients: 10 with PCOS (n = 10) and 10 controls (n = 10) with infertility solely due to male factor. Cumulus cell preparations were immunostained with Cell Signaling Technology antibody (CST #13856S, D6M5M clone) at a 1:200 dilution for H-scoring. Previously obtained AMH and other hormone levels were evaluated with the H-score. Statistical analysis used SPSS 26, with $p<0.05$ considered significant.
Results: ROC analysis evaluated hormone parameters and PGRMC1 H-score in differentiating PCOS from controls. The highest AUC values were for H-score (AUC=0.964), FSH (AUC=0.944), E2 (AUC=0.867), and AMH (AUC=0.860). The optimal H-score cutoff was >=170 (sensitivity 93.3%, specificity 93.3%). The optimal AMH cutoff was >=1.90 (sensitivity 100.0%, specificity 66.7%). In univariate logistic regression, AMH, LH on OPU day, basal FSH, E2 on OPU day, and PGRMC1 H-score were significantly associated with PCOS. A one-unit increase in AMH was associated with higher PCOS probability (OR=1.400; 95% CI: 1.009–1.941; p=0.044). OPU day LH (OR=0.384; 95% CI: 0.154–0.959; p=0.040) and basal FSH (OR=0.112; 95% CI: 0.018–0.703; p=0.020) were negatively associated with PCOS. OPU day E2 (OR=1.002; 95% CI: 1.000–1.003; p=0.007) and H-score (OR=1.089; 95% CI: 1.022–1.160; p=0.008) were positively associated with PCOS.
Conclusion: Univariate logistic regression of hormone parameters and PGRMC1 H-score in PCOS showed strong associations with AMH, FSH, LH, and E2.

Keywords: PGRMC1, Polycystic Ovary Syndrome (PCOS), Cumulus Cells, AMH

PP-04. Immediate Vitrification of Rapidly Developing Day-4 Blastocysts Versus Conventional Day-5 Vitrification: Does Earlier Cryopreservation Preserve Embryo–Endometrial Synchrony and Improve Clinical Pregnancy?

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Objective: Embryos reaching the blastocyst stage on Day 4 show accelerated preimplantation development and may represent a distinct subgroup with higher developmental competence, but their optimal management remains uncertain. Culturing Day 4 blastocysts until Day 5 raises concerns about altered embryo–endometrial synchrony and loss of developmental potential. This study evaluated whether immediate vitrification of Day-4 blastocysts, followed by frozen embryo transfer, improves clinical pregnancy outcomes compared with Day-4 blastocysts cultured until Day 5 before vitrification and frozen embryo transfer.
Materials and Methods: This retrospective pilot cohort study included frozen single blastocyst transfer cycles. 20 patients with Day 4 blastocyst transfer were matched with 20 patients with Day 5 blastocyst transfer by propensity score matching on baseline demographics, infertility etiology, and embryo quality. Baseline characteristics, embryological outcomes, and clinical pregnancy rates were compared. Multivariable logistic regression was adjusted for female age, male age, and embryo quality.
Results: After matching, baseline demographics, infertility etiology, embryo quality, and embryological parameters, including MII oocyte rate, fertilization rate, cleavage rate, blastulation rate, and total blastocyst number, were comparable (all $p>0.05$). Clinical pregnancy was achieved in 70.0% (14/20) of patients after Day 4 blastocyst transfer versus 45.0% (9/20) after Day 5 transfer (p=0.110). Among patients receiving good-quality embryos, clinical pregnancy rates were 69.2% versus 38.5%, respectively (p=0.116). In multivariable analysis, Day 4 transfer was associated with 2.48-fold higher odds of clinical pregnancy than Day 5 transfer after adjustment for female age, male age, and embryo quality (adjusted OR=2.48, 95% CI 0.65–9.50), without reaching statistical significance (p=0.184).
Conclusion: Although not statistically significant, Day 4 blastocyst transfer consistently showed higher clinical pregnancy rates across all analyses. The direction and magnitude of the effect suggest that Day 4 blastocysts may benefit from immediate vitrification and transfer rather than culture until Day 5, potentially avoiding unnecessary delay and preserving embryo–endometrial synchrony. These preliminary findings support larger prospective studies.

Keywords: Day 4 blastocyst, accelerated embryo development, frozen embryo transfer

PP-05. Blastocyst Vitrification-Warming and Biopsy Procedures: Comparative Impact on Ongoing Pregnancy Rates in Freeze-All IVF Cycles

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Objective: The present retrospective cohort study aimed to determine whether blastocyst vitrification–warming or blastocyst biopsy has a greater impact on blastocyst viability, as assessed by ongoing pregnancy rates following single blastocyst transfer in freeze-all IVF cycles.
Materials and Methods: Treatment cycles performed between January 2023 and October 2025, with or without preimplantation genetic testing for aneuploidy (PGT-A), were evaluated. Single frozen embryo transfer (FET) cycles involving >=3CC blastocysts were classified into four groups according to the sequence of biopsy and vitrification procedures: vitrified–warmed–transfer (non-PGT), vitrified–warmed–vitrified–warmed–transfer (double vitrification, non-PGT), biopsy–vitrified–warmed–transfer (PGT-A with biopsy before vitrification), and vitrified–warmed–biopsy–vitrified–warmed–transfer (PGT-A with biopsy after warming). All vitrification and warming procedures were performed using the Cryotop ultra-rapid vitrification system (Kitazato BioPharma Co., Ltd., Fuji, Japan), biopsies were performed using Narishige micromanipulation equipment (Narishige Co., Ltd., Tokyo, Japan), and embryos were cultured using a single-step culture system (Irvine Scientific, Santa Ana, CA, USA). All transfers consisted of single blastocyst FETs. The primary outcome was the ongoing pregnancy rate.
Results: In the non-PGT group, the ongoing pregnancy rate was 69.5% (658/947), whereas in the PGT-A group it was 76.8% (222/289). The overall ongoing pregnancy rate across all single blastocyst transfer cycles was 64.8%.
Conclusion: These findings suggest that neither blastocyst vitrification–warming nor biopsy adversely affected blastocyst viability, as reflected by ongoing pregnancy outcomes. Furthermore, PGT-A cycles demonstrated a higher ongoing pregnancy rate than non-PGT

cycles. However, detailed subgroup analyses with appropriate statistical comparisons are required to determine whether procedural variables, including double vitrification and the timing of biopsy, influence reproductive outcomes.

Keywords: Blastocyst biopsy, Blastocyst vitrification, Frozen embryo transfer, Ongoing pregnancy

PP-06. Plasma hypoxia-inducible factor 1α, sirtuin-2 and erythropoietin Levels in women with polycystic ovary syndrome: a case-control study

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Objective: To investigate plasma HIF-1α, SIRT2 and EPO levels in women with PCOS undergoing IVF and their associations with BMI, oocyte maturation and embryo development.
Materials and Methods: This single-center case-control study included 20 women with PCOS and 20 age- (<38 years) and BMI-matched controls undergoing IVF with normozoospermic partners between January and December 2025 at Bezmialem Vakif University ART Center. PCOS was diagnosed by Rotterdam criteria. Subgroups were analyzed by BMI (>=25 vs <25 kg/m²). Plasma HIF-1α, SIRT2 and EPO were measured in fasting blood samples using commercial ELISA kits. Embryos were graded by Gardner criteria. Non-parametric tests were used, with $p<0.05$ considered significant.
Results: Plasma HIF-1α, SIRT2 and EPO levels were numerically higher in women with PCOS than controls, but not significantly ($p>0.05$). HIF-1α was significantly higher in overweight/obese (BMI >=25 kg/m²) than lean (BMI <25 kg/m²) PCOS patients ($p=0.013$), with no BMI-related differences in controls. Strong positive correlations were found among HIF-1α, SIRT2 and EPO in the overall cohort and within each group (Spearman's rho >0.8, $p<0.001$). Biomarker levels were not associated with oocyte yield, oocyte maturation, fertilization outcomes, Day-5 blastocyst number or embryo quality.
Discussion: Although plasma HIF-1α, SIRT2 and EPO were not significantly altered in PCOS overall, increased HIF-1α in overweight/obese PCOS patients may reflect obesity-related hypoxic or metabolic stress. The strong inter-biomarker correlations suggest coordinated regulation of hypoxia- and metabolism-related pathways. The lack of association with embryological outcomes indicates limited predictive value of systemic plasma biomarkers for IVF outcomes in this cohort. The modest sample size and single-center design warrant caution.
Conclusion: Systemic plasma HIF-1α, SIRT2 and EPO appear to have limited clinical utility as biomarkers for reproductive outcomes in PCOS patients undergoing IVF, although obesity-related HIF-1α increases may indicate altered metabolic and hypoxic signaling. Studies of tissue-specific and follicular microenvironment mechanisms are needed to clarify their role in oocyte and embryo competence.

Keywords: erythropoietin (EPO), hypoxia-inducible factor-1α (HIF-1α), oocyte maturation, polycystic ovary syndrome (PCOS)

PP-07. Safety of Double-Dose GnRH Agonist Trigger in Polycystic Ovary Syndrome Patients Undergoing Progestin-Primed Ovarian Stimulation (PPOS): A Single-Center Experience of 502 IVF Cycles

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Objective: This study aimed to evaluate the safety and embryological outcomes of the Progestin-Primed Ovarian Stimulation (PPOS) protocol combined with a double-dose GnRH agonist trigger in patients with polycystic ovary syndrome (PCOS).
Materials and Methods: A total of 502 IVF/ICSI cycles were retrospectively reviewed, of which 135 involved patients diagnosed with PCOS according to the Rotterdam criteria. Controlled ovarian stimulation was performed using the PPOS protocol in all cases, and final oocyte maturation was triggered with a double-dose GnRH agonist (two ampoules of Gonapeptyl®). A freeze-all strategy was adopted for all patients to minimize the risk of ovarian hyperstimulation syndrome (OHSS). The primary outcome was the incidence of OHSS, while secondary outcomes included the metaphase II (MII) oocyte rate and fertilization rate.
Results: OHSS occurred in only 11 patients in the PCOS group; seven cases were classified as mild-to-moderate and four as mild. No cases of severe or critical OHSS, intensive care unit admission, thromboembolic events, or other life-threatening complications were observed. The MII oocyte rate and fertilization rate were comparable to those achieved with GnRH antagonist protocols performed during the same period. Furthermore, the freeze-all strategy effectively prevented the occurrence of late-onset OHSS.
Conclusion: The combination of the PPOS protocol, double-dose GnRH agonist trigger, and a freeze-all strategy appears to be a safe approach for preventing severe OHSS in patients with PCOS. Comparable embryological outcomes to those achieved with GnRH antagonist protocols suggest that this strategy represents a safe and effective alternative for women at high risk of OHSS. Prospective, randomized, multicenter studies are warranted to confirm these findings.

Keywords: Polycystic ovary syndrome, Progestin-Primed Ovarian Stimulation (PPOS), GnRH agonist trigger, ovarian hyperstimulation syndrome

PP-08. Association between the serum vitamin D level and prevalence of obesity in infertile women

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Objective: To explain the relationship between vitamin D and obesity in infertile women
Materials and Methods: We searched the data from our private clinic 2023-2026. A total of 198 infertile women between the ages of 21 and 39 years were included in our study. To estimate the independent

association of vitamin D with obesity, we used weighted multivariate logistic regression models and cubic spline analyses.
Results: Among infertile women in clinic 2024-2026 database, serum vitamin D levels were significantly and negatively associated with body mass index (β= −0.95, 95% CI: −1.40, −0.52, p < 0.001) and waist circumference (β= −0.40, 95% CI: −0.59, −0.22, p < 0.001), respectively. After multivariable adjustment, lower vitamin D levels were found to be associated with a higher prevalence of obesity (OR: 8.290, 95% CI: 2.451–28.039, p for trend = 0.001). Spline regression showed linearity of the associations between vitamin D and obesity.
Conclusion: Our findings suggested that a decreased vitamin D might correspond to a higher prevalence of obesity in infertile women, which reminded us to pay more attention to the supplement of vitamin D in obese infertile women.

Keywords: Obesity, women, infertility, vitamin D

PP-09. Successful IVF Pregnancy Following Repeated Platelet-Rich Plasma Treatment in a Patient With Recurrent Intrauterine Adhesions and Refractory Thin Endometrium: A Case Report

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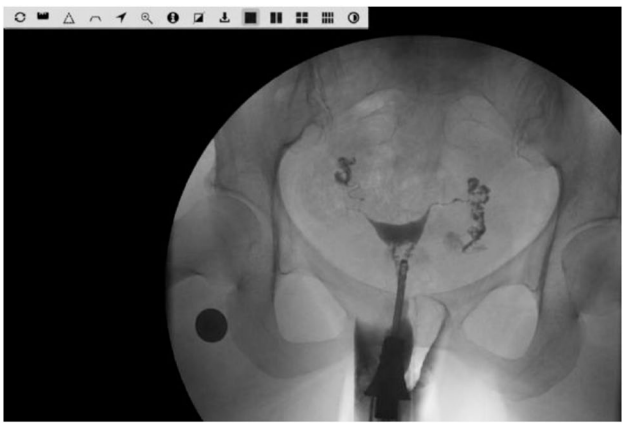
Introduction: Intrauterine adhesions (IUAs), particularly after dilatation and curettage (D&C), may impair endometrial receptivity, cause persistent endometrial thinning and reduce implantation and pregnancy rates. Platelet-rich plasma (PRP) has been proposed as an adjunct for refractory thin endometrium. We report an ongoing IVF pregnancy after multimodal management of recurrent IUAs and thin endometrium, including repeated intrauterine PRP.
Case Presentation: After nine years of infertility, two unsuccessful intrauterine insemination attempts and multiple IVF cycles, the patient was referred to our center at age 35. Her first IVF pregnancy in 2019 ended in missed abortion at 8 weeks, followed by D&C; she then developed IUAs and persistent endometrial thinning and underwent hysteroscopic adhesiolysis. After referral in 2023, hysteroscopy was performed for a suspected endometrial polyp; follow-up showed a normal cavity. In 2024, serial periovulatory ultrasonography showed endometrial thickness of approximately 6 mm. Oral and transdermal estradiol increased it to 7.5 mm, and transfer of a frozen-thawed embryo tested by PGT-A using next-generation sequencing resulted in pregnancy, complicated by cervical shortening requiring McDonald cerclage and subsequent previable PPROM, with second-trimester loss. Recurrent IUAs involving the lower uterine segment/internal os were then identified (AFS Stage II, score 6). After hysteroscopic adhesiolysis, subsequent hysteroscopies confirmed a normal cavity. Because of persistent thin endometrium, PRP was administered hysteroscopically at multiple endometrial sites under direct visualization, followed by anti-adhesion gel, and three additional intrauterine PRP administrations were performed without hysteroscopy. A subsequent IVF cycle achieved an ongoing clinical pregnancy.
Conclusion: This case shows IVF success in recurrent IUAs and refractory thin endometrium after uterine cavity restoration and repeated intrauterine PRP. The temporal association between repeated PRP and IVF success is noteworthy, but causality cannot be established from a single case. PRP may be a potential adjunct in selected patients with persistent thin endometrium; further studies should clarify its effect on endometrial receptivity and reproductive outcomes.

Keywords: Intrauterine adhesions, thin endometrium, hysteroscopic adhesiolysis, platelet-rich plasma

Fig PP-09-1. HSG



PP-10. Should High-Quality Blastocysts Derived from Zona-Free Oocytes Be Prioritized for Fresh Transfer? A Hypothesis from a Rare Case

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Introduction: Complete zona pellucida absence at the oocyte stage is rare, with scarce evidence on management. Zona-free oocytes may fertilize normally and form excellent-morphology blastocysts, but their cryotolerance is unclear, so preference for fresh transfer over cryopreservation is uncertain. We report a zona-free oocyte that became a high-quality blastocyst and discuss prioritizing its fresh transfer.
Case Presentation: A 32-year-old woman whose partner had non-obstructive azoospermia underwent ICSI using cryopreserved micro-TESE sperm. She had a live birth after fresh transfer following micro-TESE–ICSI, then three failed frozen embryo transfer (FET) cycles. At denudation, one oocyte lacked the zona pellucida, precluding reliable meiotic staging. It and eight zona-intact MII oocytes underwent ICSI. The zona-free oocyte and three zona-intact oocytes fertilized normally, and all four became day-5 blastocysts meeting transfer criteria: zona-intact 5AA, 5AA, and 4AB, and zona-free 6AA. Because Gardner expansion stage 6 denotes complete hatching, 6AA was not interpreted as superior to 5AA. A zona-intact 5AA blastocyst was transferred fresh, yielding a biochemical pregnancy; the other three were vitrified. Before a planned two-embryo FET, the zona-free blastocyst degenerated completely on warming; both zona-intact blastocysts survived and were transferred, without implantation.
Discussion: The zona pellucida supports embryonic integrity and may protect the embryo structurally during cryopreservation. Reported pregnancies after zona-free embryo transfer have not suggested reduced reproductive potential or increased risk of genetic or congenital anomalies, but evidence comparing them with zona-intact blastocysts is insufficient, particularly for cryosurvival. Without established selection criteria, a good-quality zona-intact blastocyst may be favored for fresh transfer and the zona-free one vitrified. Although this single case cannot establish causality, it suggests high-quality zona-free embryos may merit fresh transfer given their uncertain cryotolerance.

Conclusion: When feasible, a high-quality zona-free embryo may be considered for fresh transfer rather than cryopreservation, given its uncertain cryotolerance. Larger series are needed to characterize cryosurvival and guide embryo selection.

Keywords: Blastocyst, cryosurvival, fresh embryo transfer, vitrification

PP-11. Anteriorly located focal placenta accreta and a heterogeneous myometrial area following posterior wall myomectomy: a case report

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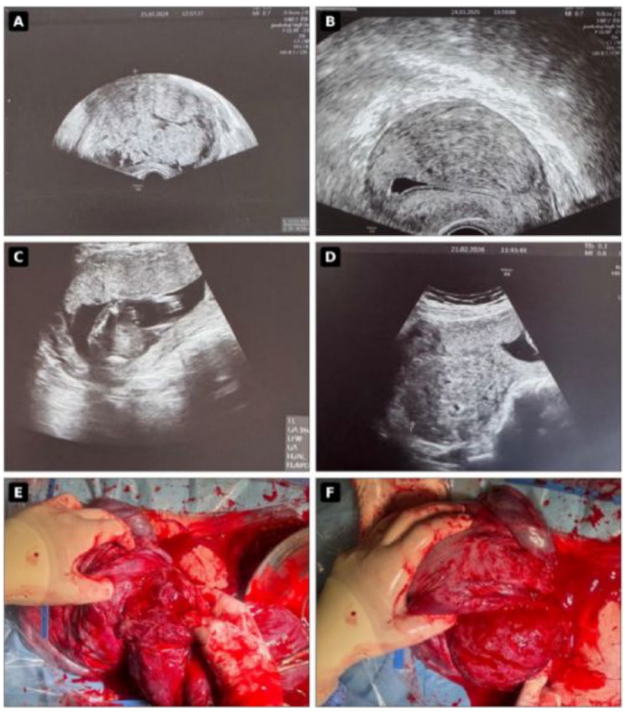
Introduction: Previous myomectomy predisposes to placenta accreta spectrum (PAS). We report anterior focal accreta distant from a posterior myomectomy site, and a heterogeneous myometrial area covering the internal os.
Case Presentation: A 30-year-old woman had heavy menstrual bleeding and pelvic pain. Ultrasonography showed a 14 × 10 cm degenerative FIGO type 3–5 posterior wall leiomyoma (Fig PP-11-1A); anti-Müllerian hormone was 0.4 ng/mL. Open myomectomy yielded a histologically cellular leiomyoma without necrosis or mitotic activity. A single 11.25 mg three-month depot leuprolide acetate dose followed. Three months later, a 6 × 7 cm heterogeneous myometrial area appeared at the site (Fig PP-11-1B). Given diminished ovarian reserve, four oocytes yielded two cryopreserved good-quality day-3 embryos. Spontaneous conception occurred approximately 11 months postoperatively. Second-trimester ultrasonography showed an anterior placenta (Fig PP-11-1C) and a heterogeneous area at the internal os (Fig PP-11-1D); at 21 weeks and 4 days, the placenta was clear of the os without retroplacental abnormality, and the avascular 113 × 55 mm area covered it completely. Planned cesarean delivery for previous uterine surgery at 38 weeks and 2 days revealed findings consistent with anterior focal accreta distant from the myomectomy site (Fig PP-11-1E) and the heterogeneous area (Fig PP-11-1F). Hemorrhage was managed without hysterectomy by bilateral uterine artery ligation, suturing, 100 µg intravenous carbetocin, 1 g intravenous tranexamic acid, 0.2 mg intramuscular methylergonovine and 800 µg misoprostol. Hemoglobin fell from 13.0 to 8.3 g/dL at 24 hours without transfusion. The 3,300 g male neonate (Apgar scores 9 and 10) needed no intensive care.
Discussion: Accreta remote from the myomectomy site suggests PAS may not result solely from local scarring; the persistent avascular os-covering area was also unusual, its etiology uncertain without histopathology.
Conclusion: PAS should be considered after myomectomy even with the placenta away from the scar; antenatal assessment, hemorrhage preparation and uterine-sparing hemostasis may facilitate uterine preservation in selected cases.

Keywords: heterogeneous myometrial area, open myomectomy, placenta accreta spectrum pregnancy, uterine-sparing surgery

Fig PP-11-1. Ultrasonographic and intraoperative findings of the case. (A) FIGO type 3–5 leiomyoma arising from the posterior uterine wall on preoperative ultrasonography. (B) Heterogeneous myometrial area at the posterior wall myomectomy site three months after surgery. (C) Anteriorly located placenta on second-trimester ultrasonography. (D) Heterogeneous myometrial area at the level of the internal cervical os. (E) Intraoperative appearance consistent with focal placenta accreta on the anterior uterine wall. (F) Intraoperative appearance of the heterogeneous myometrial area identified during the antenatal period.



PP-12. Limitations of Morphology-Based Embryo Selection: A Comparative Analysis of Two Cases

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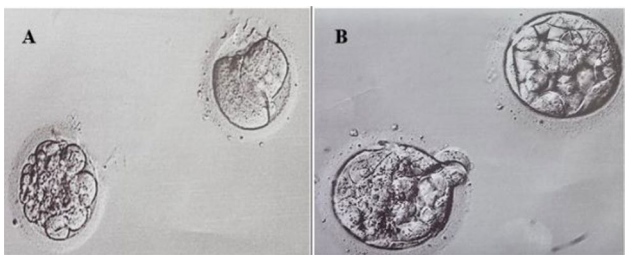
Introduction: Through two cases, this study aimed to evaluate the predictive value of morphology-based embryo selection for clinical pregnancy and the relationship between embryo quality and clinical outcomes.
Case Presentation: Two patients with similar durations of infertility undergoing Assisted Reproductive Technology were retrospectively evaluated. Clinical and laboratory parameters, including age, etiology, oocyte number and maturation, sperm characteristics, embryo development and quality, transfer day, and outcomes, were compared. The first case was a 36-year-old female with diminished ovarian reserve. Semen analysis was normal, with a sperm concentration of 72 million/mL and a progressive motility rate of 43%. A total of three oocytes were retrieved, all mature (MII). Two cleavage-stage embryos were transferred on day 3; due to favorable endometrial conditions, a fresh transfer was performed. A positive clinical outcome was achieved with a β-hCG level of 237 mIU/mL, and fetal heart beat was consecutively seen during pregnancy follow up. The second case was a 38-year-old female with severe male factor infertility (sperm concentration: 0.7 million/mL; progressive motility: 5%). A total of six oocytes were retrieved, four of which were mature (MII). No clinical pregnancy was achieved following the transfer of two good quality blastocysts.
Conclusion: These two cases suggest that embryo morphology alone may not be sufficient for predicting implantation and clinical pregnancy outcomes. Clinical pregnancy was achieved after transfer of

lower-grade cleavage-stage embryos, whereas failure after transfer of high-quality blastocysts suggests that morphological assessment may not always reflect implantation potential. In patients with advanced maternal age, diminished ovarian reserve, or a limited number of embryos, excluding embryos from transfer based solely on morphology may not always be appropriate, particularly when no additional embryos are available. In such cases, transfer of embryos with suboptimal morphology may be considered a rescue strategy. Embryo selection should therefore be individualized, incorporating morphological grading, patient prognosis, gamete quality, embryo developmental dynamics, and clinical characteristics.

Keywords: Embryo morphology, Assisted reproductive technology, Rescue strategy, Embryo selection strategy

Fig PP-12-1. Microscopic images of the embryos. Figure A. Microscopic image of the embryos from the first case. Two day-3 cleavage-stage embryos with suboptimal morphological characteristics were transferred. Despite the limited embryo quality and low embryo number, successful implantation was achieved following fresh embryo transfer, suggesting that embryos with lower morphological grades may still retain developmental and implantation potential. Figure B. Microscopic image of the embryos belonging to the second case. Although high-quality blastocysts were observed on day 5 evaluation, no clinical pregnancy was achieved following fresh embryo transfer.



PP-13. Surgical Removal of an Intramuscularly Misplaced Nexplanon® Implant: A Case Report

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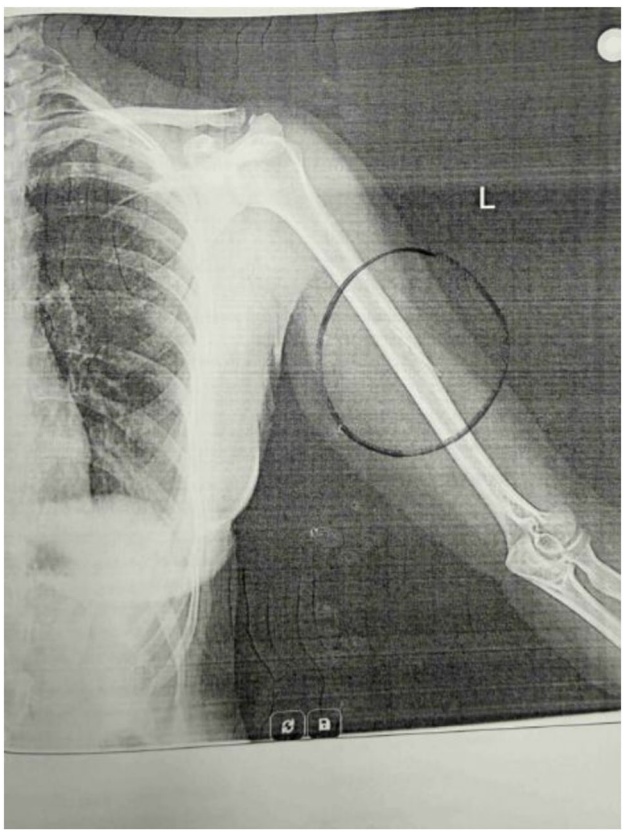
Introduction: The etonogestrel-releasing subdermal contraceptive implant (Nexplanon®) is a highly effective long-acting reversible contraceptive. Deep or intramuscular insertion is a rare complication that may result in a non-palpable implant, difficult removal, and neurovascular injury. We present an intramuscular Nexplanon® requiring multidisciplinary surgical removal.
Case Presentation: A 35-year-old woman (gravida 4, para 3) presented for removal of a Nexplanon® implant after completing its three-year contraceptive duration; it had been inserted into the left upper arm at another institution. At initial follow-up, it was not superficially palpable but was presumed deeply located, and no imaging was performed. She subsequently experienced intermittent mild left upper arm pain. At our clinic, the implant was non-palpable, and ultrasonography demonstrated it within the left biceps brachii muscle rather than the subcutaneous tissue. After orthopedic consultation, removal was performed under local anesthesia in the operating room with intraoperative C-arm fluoroscopic guidance. The implant lay adjacent to the humeral cortex, close to the lateral antebrachial cutaneous nerve. Careful blunt and sharp dissection enabled complete removal while preserving adjacent neurovascular structures. The postoperative course was uneventful, with no sensory or motor deficits. Mild muscular pain resolved with conservative treatment.
Discussion: Deeply embedded implants are uncommon but clinically significant because of the risk of neurovascular injury, including reported median and ulnar nerve injuries during attempted removal. Current evidence recommends localizing all non-palpable implants with ultrasonography, and additional imaging when necessary, before removal. As migrated implants may lie within muscle or near neurovascular structures, removal should be undertaken by experienced clinicians, preferably in the operating room with multidisciplinary support when deep implantation is suspected.
Conclusion: Deep intramuscular placement should be considered in every patient with a non-palpable Nexplanon® implant. Early imaging, prompt referral to experienced clinicians, and multidisciplinary surgical management are essential for safe removal and prevention of neurovascular injury. Strict adherence to recommended insertion technique remains the best prevention.

Keywords: Contraceptive implant, Intramuscular implantation, Nexplanon®, Neurovascular injury

Fig PP-13-1. Implant placed in the muscle on x-ray



PP-14. Developmental Competence of a Single Dysmorphic Mature Oocyte Retrieved from a Severely Torsed Solitary Ovary Resulting in Live Birth: A Case Report

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Introduction: Ovarian torsion is a rare, potentially fertility-threatening complication of controlled ovarian stimulation, and torsion before oocyte retrieval is exceedingly uncommon. Acute ischemia is expected to impair oocyte developmental competence through hypoxia, oxidative stress, and mitochondrial dysfunction, but clinical evidence in human oocytes remains limited.
Case Presentation: A 29-year-old woman with a solitary ovary after unilateral oophorectomy for a benign mature teratoma underwent controlled ovarian stimulation for IVF. Approximately 35 follicles developed with recombinant FSH, and final oocyte maturation was triggered with a GnRH agonist. Two hours before scheduled oocyte retrieval, she developed sudden-onset severe pelvic pain suggestive of ovarian torsion. Given her solitary ovary and imminent retrieval, the procedure proceeded to preserve reproductive potential. The ovary showed extensive macroscopic follicular degeneration with numerous collapsed follicles. Despite aspiration of all morphologically intact follicles, only a single dysmorphic mature oocyte was recovered. Following oocyte retrieval, emergency surgery confirmed approximately 720° ovarian torsion with severe ischemic changes. Detorsion preserved the ovary, with normal morphology and preserved ovarian reserve at one-month follow-up. Following intracytoplasmic sperm injection, normal fertilization occurred, and a day 5 blastocyst was vitrified. After warming, the embryo re-expanded completely and was transferred in a natural cycle, resulting in a clinical pregnancy and the live birth of a healthy male infant at 37 weeks and 4 days of gestation.
Discussion: Blastocyst development and live birth despite extensive follicular destruction suggest that severe acute ovarian ischemia may not invariably abolish oocyte developmental competence and that a resilient subpopulation of oocytes may retain full developmental potential despite profound hypoxic injury.
Conclusion: To our knowledge, this is the first reported live birth following surgically confirmed severe post-trigger ovarian torsion occurring only hours before oocyte retrieval in a patient with a solitary ovary. It supports individualized multidisciplinary management preserving both fertility potential and ovarian function in selected patients.

Keywords: Ovarian torsion, In vitro fertilisation, Oocyte developmental competence, Blastocyst

PP-15. Placental Site Nodule Diagnosed During Infertility Workup: A Case Report of Successful Pregnancy After Hysteroscopic Resection

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Introduction: Placental site nodules (PSNs) are rare, benign lesions of chorionic-type intermediate trophoblastic cells, typically detected incidentally after uterine instrumentation or during abnormal uterine bleeding workups. Their significance in reproductive failure remains poorly defined, and differentiating PSN from atypical PSN (APSN), epithelioid trophoblastic tumor (ETT), and placental site trophoblastic tumor (PSTT) is crucial given divergent management. We report a PSN detected during secondary infertility evaluation, successfully managed with hysteroscopic resection and followed by a term live birth.
Case Presentation: A 25-year-old woman with male factor infertility experienced recurrent frozen embryo transfer (FET) failures following a dilatation and curettage (D&C) for a missed abortion. Transvaginal ultrasonography revealed a suspected endometrial polyp (Fig PP-15-1). Operative hysteroscopy with complete lesion resection was performed. Histopathological examination demonstrated chorionic-type intermediate trophoblast within a hyalinized stroma, along with a low Ki-67 proliferation index, confirming a typical PSN without features of APSN or trophoblastic neoplasia. No further intervention was indicated. The patient subsequently conceived with a modified natural cycle FET (mNC-FET), and the pregnancy progressed uneventfully to the delivery of a healthy term infant. Although a causal relationship cannot be established, this raises the possibility that removal of an intracavitary PSN may benefit selected patients, consistent with limited previous reports of favorable reproductive outcomes after PSN resection.
Conclusion: PSNs should be included in the differential diagnosis of intracavitary endometrial lesions during infertility investigations, particularly in patients with a history of pregnancy loss and curettage. Histopathological assessment, supported by immunohistochemistry when necessary, is important to exclude atypical placental site nodule and intermediate trophoblastic neoplasms before conservative management. In selected cases, hysteroscopic resection of a PSN may be associated with favorable reproductive outcomes, as illustrated by the healthy term live birth in our patient. Larger studies are needed to clarify the true pathophysiologic contribution of PSNs to infertility and to establish standardized management protocols.

Keywords: Frozen embryo transfer, Placental site nodule, Recurrent implantation failure

Fig PP-15-1. Transvaginal ultrasonographic appearance of the intracavitary polypoid lesion subsequently diagnosed as a placental site nodule.



PP-16. Recurrent fetal male lethality owing to maternal heterozygous OFD1 mutation: A case report

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Introduction: Monoallelic pathogenic variants on chromosome X would predominantly affect males. The present study reports a family whose exome sequencing revealed a heterozygous pathogenic variant in "OFD1 centriole and centriolar satellite protein" (OFD1) gene, located on chromosome X, with recurrent fetal male loss.
Case Presentation: A parent with ages 43-year for female and 44-year for male and having 3 healthy female children (ages 8, 13 and 18 years) was directed to genetic screening for recurrent fetal male lethality. Dual whole exome sequencing (WES) using Twist Exome 2.0 and Illumina platform was performed to detect possible molecular explanation for this parent. Data was analyzed according to the ACMG criteria. Three pregnancies with male fetuses were naturally terminated at 12th, 16th and 18th weeks. Prior in vitro fertilization (IVF) protocol, WES was conducted to focus on the sex chromosomes. Accordingly, a heterozygous pathogenic variant, NM_003611.3:c.1006_1009del:p.Lys-336Valfs*15 was detected in OFD1 gene, located on Xp22.2, whereas the father was normal. Amongst the phenotypes linked to the OFD1, male lethality was explained by the condition, Orofaciodigital syndrome I (OMIM: 311200), a X-linked dominant form.
Conclusion: The present study confirms the association between OFD1 pathogenic variants and fetal male lethality. For sex-dependent lethality cases, screening sex chromosomes using WES approach would be informative before IVF protocol.

Keywords: Fetal male lethality, OFD1, Orofaciodigital syndrome

PP-17. Tacrolimus for Unexplained Highly Recurrent Miscarriage

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Objective: To evaluate the efficacy of tacrolimus in the prevention of unexplained highly repetitive early miscarriage.
Materials and Methods: Fifty three patients with a history of 1st trimester unexplained miscarriage were enrolled. All fulfilled these criteria: 1) age between 18 and 40 years, 2) history of 5 or more miscarriages, 3) no previous history of stillbirth, 4) negative aetiology-based investigations, and 5) clinically and investigationally normal husbands. Tacrolimus 2 one mg tablets were prescribed from the day of the positive pregnancy test on the 1st day of the missed period until all cases either passed 15 weeks of gestation or aborted before. Patients who passed the 15th gestational week were followed until the end of pregnancy.
Results: Of the 53 cases recruited, 4 were lost to follow-up. Thirty seven cases (73.8%) passed the 15th gestational week; of these, 29 (57.8%) passed 37 weeks and 8 (15.7%) delivered between 32 and 36 weeks. All neonates were alive and healthy.
Conclusion: Tacrolimus seems an effective therapy for cases of unexplained highly repetitive miscarriage. The findings should be confirmed by a case-control study with a larger number of cases.

Keywords: miscarriage, recurrent, tacrolimus

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Data availability No datasets were generated or analysed during the current study.

Declarations

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