Original Article

Serum Anti-Müllerian Hormone and IVF Outcomes: Associations with Oocyte Yield, Embryo Development, and Biochemical Pregnancy

Nahid Lorzadeh[1], Amir Rozbahani[2], Parastoo Baharvand[3], Fatemeh Yari[1*]

[1] Department of Obstetrics and Gynecology, Faculty of Medicine, Lorestan University of Medical Sciences, Khorramabad, Iran.

[2] Student, Student Research Committee, Lorestan University of Medical Sciences, Khorramabad, Iran.

[3] Department of Social Medicine, School of Medicine, Lorestan University of Medical Sciences, Khorramabad, Iran.

***Corresponding author:** Fatemeh Yari, Department of Obstetrics and Gynecology, Faculty of Medicine, Lorestan University of Medical Sciences, Khorramabad, Iran. E-mail: yari.fatemeh2024@gmail.com

Receive Date: 02 August 2026; **Revise Date:** 28 October 2026; **Accept Date**: 01 November 2026; **Publish Date:** 05 November 2026.
Nexus of Pathophysiology and Therapeutics (NPT). 2026;1(1): 020, https://doi.org/10.22034/npt.2026.1.020

Abstract:

Background: Anti-Müllerian hormone (AMH) serves as an important biomarker for evaluating ovarian reserve and estimating the expected ovarian response to controlled stimulation in in vitro fertilization (IVF) cycles. Its relationship with pregnancy outcomes, however, remains less clear. This study examined the associations between serum AMH levels, ovarian response, and biochemical pregnancy in women undergoing IVF.

Methods: his observational analytical study included 221 infertile women undergoing IVF. Serum AMH and other reproductive hormones were assessed, and antral follicle count (AFC), numbers of retrieved oocytes and embryos, and serum beta-human chorionic gonadotropin (β-hCG) were recorded. Serum β-hCG concentrations were determined 16 days following embryo transfer. Associations between the study variables were examined using Spearman's rank-order correlation analysis. AMH levels were compared between women with positive and negative biochemical pregnancy outcomes using the Mann–Whitney U test.

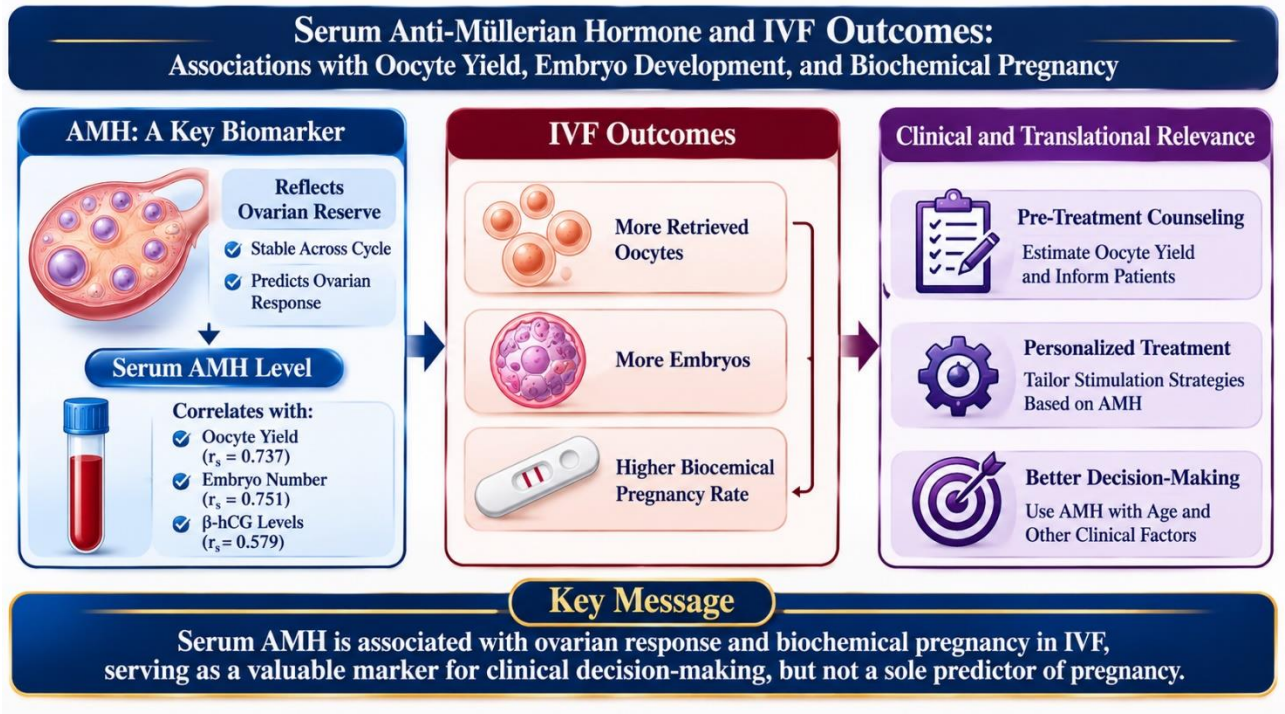
Results: Mean serum AMH was 1.70 ± 1.19 ng/mL. AMH was strongly and positively correlated with the number of retrieved oocytes (r_s = 0.737, P = 0.0001) and embryos (r_s = 0.751, P = 0.0001). A positive correlation was also observed between AMH and serum β-hCG (r_s = 0.579, P = 0.0001). Women with positive biochemical pregnancy had higher AMH levels than those with negative results (2.836 ± 0.684 vs. 1.173 ± 0.996 ng/mL, P = 0.0001).

Conclusion: Serum AMH was associated with the quantitative ovarian response to IVF and with biochemical pregnancy status. These findings support its role in ovarian reserve assessment but do not establish its independent ability to predict pregnancy.

Clinical and Translational Relevance: AMH measurement may help estimate oocyte yield and inform counselling before ovarian stimulation. It should not be used alone to predict pregnancy or live birth; interpretation alongside maternal age and other clinical factors is warranted. Further studies with adjusted analyses and live-birth follow-up are needed.

Keywords: Anti-Müllerian hormone; Ovarian reserve; In vitro fertilization; Oocyte retrieval; Biochemical pregnancy.

© The Author(s) 2026. Published by ***Nexumed Scientific Press*** on behalf of ***Nexus of Pathophysiology and Therapeutics (NPT)***. This is an Open Access article distributed under the Creative Commons Attribution 4.0 International License (CC BY 4.0) (https://creativecommons.org/licenses/by/4.0/), which permits unrestricted use, distribution, and reproduction in any medium, provided the original author(s) and the source are properly credited.



Graphical Abstract: Serum Anti-Müllerian Hormone and IVF Outcomes: Associations with Oocyte Yield, Embryo Development, and Biochemical Pregnancy. Serum anti-Müllerian hormone (AMH) is positively associated with ovarian response during IVF, particularly the number of retrieved oocytes and embryos. Higher AMH levels are also associated with positive biochemical pregnancy outcomes. These findings support the clinical value of AMH in assessing ovarian reserve, estimating oocyte yield, and informing pre-treatment counselling. However, AMH should not be considered an independent predictor of pregnancy or live birth and should be interpreted alongside maternal age and other clinical factors. Further studies incorporating adjusted analyses and live-birth outcomes are needed to clarify its prognostic value.

Introduction

Infertility represents a significant global reproductive health challenge, with implications for the reproductive well-being of both individuals and couples across diverse populations (1). Advances in assisted reproductive technologies (ART), especially in vitro fertilization (IVF), have expanded the available opportunities for achieving pregnancy among couples experiencing infertility (2). However, treatment outcomes vary considerably among patients. Age, ovarian reserve, ovarian response to stimulation, embryo development, and other clinical factors can influence the probability of pregnancy (3). Identifying reliable markers of ovarian reserve is therefore important for treatment planning and counseling women undergoing IVF (4). Ovarian reserve represents the remaining pool of ovarian follicles and is a key determinant of ovarian response to controlled ovarian stimulation (4, 5). Several clinical and laboratory parameters are used to assess ovarian reserve, including age, basal follicle-stimulating hormone (FSH), estradiol (E2), and antral follicle count (AFC) (6). Although these measures provide useful information, their predictive performance varies. Age remains an important determinant of reproductive potential, but it does not fully reflect differences in ovarian reserve among women of similar age (7, 8). Similarly, basal FSH and E2 levels may be influenced by cycle-related variation and may not consistently identify changes in ovarian reserve (4, 9). Anti-Müllerian hormone (AMH) has become an important biomarker in the assessment of ovarian reserve (10, 11). It is produced by granulosa cells of preantral and small antral follicles and reflects the

size of the growing follicular pool (10, 12). Compared with basal FSH and E2, AMH shows relatively limited variation during the menstrual cycle (13, 14). This characteristic makes it a useful marker for evaluating ovarian reserve in women undergoing fertility treatment. Serum AMH concentrations have additionally been linked to oocyte yield following controlled ovarian stimulation (15). In clinical practice, AMH measurements can help clinicians anticipate ovarian response and individualize stimulation strategies (16, 17).

Despite its established role in predicting ovarian response, the relationship between AMH and pregnancy outcomes after IVF is less straightforward (4). A higher AMH concentration may be associated with a greater number of retrieved oocytes and, potentially, more embryos available for transfer (18). However, these intermediate treatment outcomes do not necessarily translate into a higher probability of pregnancy. Embryo quality, maternal age, endometrial factors, infertility-related conditions, and other clinical characteristics also contribute to reproductive success (3). Therefore, AMH should not be interpreted as a direct or independent measure of the probability of pregnancy (4). This distinction is clinically important. Women undergoing IVF may interpret AMH results as an indicator of their overall chances of conception (4, 19). Therefore, examining the associations of AMH with oocyte yield, embryo number, and biochemical pregnancy may help clarify its clinical relevance across different stages of IVF treatment.

Accordingly, this study investigated the association between serum AMH levels and ovarian reserve parameters in infertile women undergoing IVF. The relationships between AMH concentrations and the numbers of retrieved oocytes and embryos were examined. The study also evaluated whether serum AMH levels differed between women with positive and negative biochemical pregnancy outcomes. The findings may help clarify the clinical relevance of AMH measurements in the evaluation of women undergoing IVF treatment.

Materials and Methods

1. Study Design and Setting

This observational analytical study was conducted at Barakat Infertility Center, Khorramabad, Iran, between 2022 and 2023. The study included 221 infertile women undergoing in vitro fertilization (IVF) treatment who met the predefined eligibility criteria. The primary objective was to investigate the association between serum anti-Müllerian hormone (AMH) levels, ovarian reserve parameters, and IVF treatment outcomes. The study protocol was approved by the Research Ethics Committee of Lorestan University of Medical Sciences (Ethics approval code: IR.LUMS.REC.1402.254). Written informed consent was obtained from all participants before enrollment. The study was conducted in accordance with the ethical principles of the Declaration of Helsinki.

2. Study Population and Eligibility Criteria

The study population consisted of women with infertility who were referred to Barakat Infertility Center, Khorramabad, Iran, for IVF treatment during the study period. Participants were eligible if they provided written informed consent, had no known underlying endocrine disorders, had not used hormonal medications during the preceding three months, had no diagnosis of polycystic ovary syndrome (PCOS) based on the Rotterdam criteria, and had no evidence of azoospermia in their male partners. The exclusion criteria included thyroid, hepatic, renal, or hematological disorders; complications related to assisted reproductive technology (ART); ovarian cysts detected by ultrasonography; and abnormal uterine bleeding. A

total of 221 women who met the eligibility criteria were included in the final analysis.

3. Clinical and Laboratory Assessments

Demographic and clinical characteristics were obtained from patients' medical records using a researcher-developed data collection checklist. The recorded variables included age, body mass index (BMI), duration of infertility, serum anti-Müllerian hormone (AMH), follicle-stimulating hormone (FSH), luteinizing hormone (LH), estradiol (E2), antral follicle count (AFC), number of retrieved oocytes, number of embryos, and serum beta-human chorionic gonadotropin (β-hCG) levels. Serum AMH, FSH, LH, and E2 concentrations were measured at Arya Laboratory using enzyme-linked immunosorbent assay (ELISA). According to the study protocol, blood samples for hormonal assessment were collected on days 2–3 of the menstrual cycle. Baseline transvaginal ultrasonography was performed on days 1–3 of the menstrual cycle to assess ovarian morphology, identify ovarian cysts or other underlying ovarian pathology, and determine the AFC. The total number of antral follicles identified in both ovaries was recorded, consistent with the established approach to AFC assessment (20). The numbers of retrieved oocytes and embryos were obtained from the patients' IVF treatment records. Body mass index (BMI) was determined by dividing body weight (kg) by the squared height (m^2). The duration of infertility was documented in years.

4. Controlled Ovarian Stimulation and IVF Procedure

Controlled ovarian stimulation was performed in all participants following the standard treatment procedures established at the infertility center. Ovarian stimulation was initiated on cycle day 3 or 4 using human menopausal gonadotropin (HMG). The initial gonadotropin dose was individualized based on patient age, baseline antral follicle count (AFC), and clinical assessment of ovarian reserve. Ovarian response was monitored by serial transvaginal ultrasonography at intervals of approximately 3–4 days. Depending on follicular development, subsequent assessments were performed 2–3 days later to monitor ovarian response and determine the timing of final oocyte maturation. When at least two follicles reached a diameter of approximately 17–18 mm, final oocyte maturation was triggered by administering 5,000–10,000 IU of human chorionic gonadotropin (hCG), according to the ovarian response and the center's clinical protocol (21). Oocytes were collected approximately 34–36 hours following the administration of hCG. The retrieved oocytes were assessed by the center's embryology team, and the number of retrieved oocytes and embryos was recorded. Embryo transfer was performed approximately 36–48 hours after oocyte retrieval when suitable embryos were available.

5. Assessment of IVF Treatment Outcomes

Biochemical pregnancy was defined as the primary pregnancy endpoint and determined based on serum β-hCG measurements obtained 16 days following embryo transfer. For correlation analyses, serum β-hCG concentrations were treated as continuous variables, whereas biochemical pregnancy status was categorized dichotomously (positive or negative) according to the laboratory findings. Additional IVF treatment outcomes included the number of retrieved oocytes and the number of embryos obtained. These parameters were recorded from the patients' IVF and embryology records. The relationship of pretreatment serum AMH concentrations with the measured IVF outcomes was then investigated.

6. Statistical Analysis

Statistical analyses were performed using IBM SPSS Statistics, version 26 (IBM Corp., Armonk, NY, USA). Continuous variables were summarized as mean ± standard deviation (SD), and categorical variables were expressed as frequencies and percentages. The normality of continuous variables was assessed using the Kolmogorov–Smirnov test. Spearman's rank correlation coefficient was used to assess the associations between serum AMH levels and the numbers of retrieved oocytes, embryos, and serum β-hCG concentrations. The Mann–Whitney U test was used to compare serum AMH levels between women with positive and negative biochemical pregnancy outcomes. A two-tailed approach was adopted for all statistical analyses, with statistical significance defined as a P value below 0.05.

Results

1. Participant Characteristics at Study Entry

The study population comprised 221 women with infertility who received treatment through an IVF program. The mean age was 38.06 ± 4.59 years, and the mean BMI was 30.83 ± 3.52 kg/m². The mean duration of infertility was 7.18 ± 2.80 years. Serum AMH levels averaged 1.70 ± 1.19 ng/mL across the study population. The mean baseline concentrations of FSH, LH, and estradiol were 7.00 ± 5.83 IU/L, 5.23 ± 6.56 IU/L, and 107.98 ± 43.44 pg/mL, respectively (Table 1).

Characteristic	Value
Age (years)	38.06 ± 4.59
Body mass index (kg/m²)	30.83 ± 3.52
Duration of infertility (years)	7.18 ± 2.80
Anti-Müllerian hormone (ng/mL)	1.70 ± 1.19
Follicle-stimulating hormone (IU/L)	7.00 ± 5.83
Luteinizing hormone (IU/L)	5.23 ± 6.56
Estradiol (pg/mL)	107.98 ± 43.44

Table 1. Demographic and Clinical Profile of Participants at Baseline (n = 221). Values are presented as mean ± standard deviation (SD).

2. Ovarian Reserve and IVF Treatment Outcomes

The mean antral follicle count (AFC) was 3.27 ± 2.38. The mean numbers of retrieved oocytes and embryos were 5.40 ± 3.43 and 2.34 ± 1.38, respectively. Biochemical pregnancy was observed in 71 women (32.1%), while 150 women (67.9%) had a negative serum β-hCG result (Table 2).

Parameter	Value
Antral follicle count (AFC)	3.27 ± 2.38
Number of retrieved oocytes	5.40 ± 3.43
Number of embryos	2.34 ± 1.38
Positive biochemical pregnancy, n (%)	71 (32.1)
Negative biochemical pregnancy, n (%)	150 (67.9)

Table 2. Ovarian Reserve Parameters and IVF Treatment Outcomes in the Study Population (n = 221). Values are presented as mean ± standard deviation (SD) or number (percentage), as appropriate. Means and standard deviations were calculated from the reported frequency distributions.

3. Correlation Between Serum AMH Levels and IVF Treatment Outcomes

Serum AMH levels showed strong positive correlations with the number of retrieved oocytes (r_s = 0.737, P < 0.001) and the number of embryos (r_s = 0.751, P < 0.001). A moderate-to-strong positive correlation was also observed between serum AMH levels and serum β-hCG concentrations (r_s = 0.579, P < 0.001) (Table 3).

IVF treatment *parameter*	Spearman's correlation coefficient (r_s)	P value
Number of retrieved oocytes	0.737	0.0001
Number of embryos	0.751	0.0001
Serum β-hCG concentration	0.579	0.0001

Table 3. Correlation Between Serum Anti-Müllerian Hormone Levels and IVF Treatment Outcomes. Values are presented as Spearman's rank correlation coefficients (r_s). Correlations were assessed using Spearman's rank correlation analysis. AMH, anti-Müllerian hormone; IVF, in vitro fertilization; β-hCG, beta-human chorionic gonadotropin.

4. Association Between Serum AMH Levels and Pregnancy Outcome

Serum AMH levels were significantly higher in women with a positive biochemical pregnancy outcome than in those with a negative outcome (2.836 ± 0.684 vs. 1.173 ± 0.996 ng/mL, respectively; P = 0.0001) (Table 4).

Biochemical pregnancy outcome	Number of patients (n)	AMH level (ng/mL), mean ± SD	Minimum (ng/mL)	Maximum (ng/mL)	P value
Positive	71	2.836 ± 0.684	0.8	6.1	0.0001
Negative	150	1.173 ± 0.996	0.3	6.3	

Table 4. Comparison of Serum Anti-Müllerian Hormone Levels Between Women with Positive and Negative Biochemical Pregnancy Outcomes. Values are presented as mean ± standard deviation (SD). Groups were compared using the Mann–Whitney U test. AMH, anti-Müllerian hormone.

Discussion

The present study investigated the relationship between serum anti-Müllerian hormone (AMH) levels, ovarian reserve parameters, and pregnancy outcomes in 221 women undergoing in vitro fertilization (IVF). The findings showed significant positive correlations between AMH levels and both the number of retrieved oocytes and the number of embryos. AMH levels were also positively correlated with serum beta-human chorionic gonadotropin (β-hCG) concentrations. In addition, women with a positive biochemical pregnancy outcome had significantly higher AMH levels than those with a negative outcome. Together, these findings support the association of AMH with ovarian response and suggest a relationship between ovarian reserve and early pregnancy outcomes in women undergoing IVF. However, the observed associations do not establish that AMH independently predicts pregnancy success.

The positive association between serum AMH levels and the number of retrieved oocytes supports the established role of AMH in assessing ovarian reserve before IVF (15). The positive association

between serum AMH levels and the number of retrieved oocytes further supports its value as a biomarker of ovarian reserve and ovarian response during IVF treatment (15, 22). Current reproductive medicine guidelines recognize AMH and antral follicle count (AFC) as useful markers for predicting ovarian response (23). The association between AMH and embryo number may largely be explained by the greater oocyte yield in women with higher AMH levels (18). A larger number of retrieved oocytes provides more opportunities for fertilization and embryo development (24). However, embryo number does not necessarily reflect embryo quality. Factors such as oocyte maturity, sperm characteristics, fertilization, and laboratory conditions also influence embryo development (25). Since embryo quality and developmental potential were not assessed in this study, the findings primarily support an association between AMH and the quantitative outcomes of IVF rather than embryo competence. The association between AMH and biochemical pregnancy requires a more cautious interpretation. Women with a positive biochemical pregnancy result had higher AMH levels than those with a negative result (26, 27). This may partly reflect their greater ovarian response and the resulting opportunity to obtain embryos for transfer. However, AMH is more consistently associated with oocyte yield than with pregnancy or live birth (4, 28). Current guidelines do not recommend AMH as a stand-alone marker for predicting these outcomes. Although a 2023 systematic review reported an association between AMH and cumulative live birth, it found no reliable threshold for identifying women who would achieve live birth (29). The findings suggest an association between AMH and early pregnancy status but do not establish its independent predictive value. The positive correlation between AMH and serum β-hCG should be interpreted cautiously, as the predominance of negative biochemical pregnancy results may have influenced this association. Thus, the correlation may partly reflect differences between women with positive and negative pregnancy results rather than a direct relationship between AMH and β-hCG production. Further analyses adjusting for relevant clinical factors are needed. Maternal age is particularly important because, unlike AMH, which primarily reflects ovarian reserve quantity, age is more closely associated with oocyte competence and embryo chromosomal status. Therefore, age, BMI, and other clinical and treatment-related factors should be considered when interpreting the relationship between AMH and IVF outcomes.

Limitations

This study has several limitations. Its observational design does not allow causal conclusions. The analyses were not adjusted for potential confounders, particularly age, body mass index, and treatment-related factors. In addition, the study assessed biochemical pregnancy rather than clinical pregnancy or live birth. Embryo quality, fertilization rate, and implantation-related factors were also unavailable. Finally, the correlation between AMH and β-hCG should be interpreted cautiously because pregnancy status was defined using β-hCG measurements. Future studies with multivariable analyses and longer follow-up are needed to determine whether AMH provides additional prognostic information beyond established clinical factors.

Conclusion

Serum AMH levels were positively associated with ovarian response to IVF, particularly the numbers of retrieved oocytes and embryos. Higher AMH levels were also observed in women who achieved biochemical pregnancy. These findings support the value of AMH in assessing ovarian reserve and

anticipating ovarian response. However, its ability to independently predict pregnancy outcomes remains uncertain. AMH should therefore be interpreted alongside other clinical and treatment-related factors rather than as a stand-alone predictor of IVF success. Further studies with multivariable analyses and live birth outcomes are needed to clarify its prognostic value.

6. Clinical and Translational Relevance

The findings support the use of serum AMH as a marker of ovarian reserve and expected ovarian response in women undergoing IVF. Its measurement may help clinicians estimate oocyte yield and improve counselling before ovarian stimulation. However, the observed association with biochemical pregnancy does not establish its independent prognostic value. AMH should therefore be interpreted alongside maternal age and other clinical factors rather than used alone to predict pregnancy or live birth. Further studies are needed to clarify its additional value in predicting reproductive outcomes.

Data Availability Statement

The data supporting the findings of this study are available from the corresponding author upon reasonable request.

Conflict of Interests

The authors declare that they have no conflicts of interest.

Author Contributions

NL and FY contributed to the conceptualization of the study. FY was responsible for project administration. NL, AR, and FY contributed to data collection. PB performed the statistical analysis. AR prepared the initial draft of the manuscript. All authors reviewed and approved the final version of the manuscript.

Ethics Statement

All ethical considerations, including plagiarism, data fabrication, and duplicate publication, have been fully observed by the authors.

Acknowledgement

The authors gratefully acknowledge the staff of Barakat Infertility Center, Khorramabad, Iran, for their cooperation and support throughout the study, as well as all women who participated in the research.

Artificial Intelligence (AI) Disclosure

AI-assisted technology was used solely for language editing and grammatical refinement of the manuscript. No generative AI tools were used for data analysis, statistical interpretation, or the generation of scientific findings.

Publisher's Note

The graphical abstract was prepared by the journal's editorial team using artificial intelligence-assisted design tools and was reviewed and approved by the authors prior to publication.

Reference

1. Cox CM, Thoma ME, Tchangalova N, Mburu G, Bornstein MJ, Johnson CL, et al. Infertility prevalence and the methods of estimation from 1990 to 2021: a systematic review and meta-analysis. Hum Reprod Open. 2022;2022(4):hoac051. https://doi.org/10.1093/hropen/hoac051

2. van Eekelen R, van Geloven N, van Wely M, Bhattacharya S, van der Veen F, Eijkemans MJ, et al. IVF for unexplained subfertility; whom should we treat? Hum Reprod. 2019;34(7):1249-59. https://doi.org/10.1093/humrep/dez072

3. van Loendersloot LL, van Wely M, Limpens J, Bossuyt PM, Repping S, van der Veen F. Predictive factors in in vitro fertilization (IVF): a systematic review and meta-analysis. Hum Reprod Update.

2010;16(6):577-89. https://doi.org/10.1093/humupd/dmq015

4. Testing and interpreting measures of ovarian reserve: a committee opinion. Fertil Steril. 2020;114(6):1151-7. https://doi.org/10.1016/j.fertnstert.2020.09.134

5. Devroey P, Fauser BC, Diedrich K. Approaches to improve the diagnosis and management of infertility. Hum Reprod Update. 2009;15(4):391-408. https://doi.org/10.1093/humupd/dmp012

6. Fertility evaluation of infertile women: a committee opinion. Fertil Steril. 2021;116(5):1255-65. https://doi.org/10.1016/j.fertnstert.2021.08.038

7. Rosen MP, Johnstone E, McCulloch CE, Schuh-Huerta SM, Sternfeld B, Reijo-Pera RA, et al. A characterization of the relationship of ovarian reserve markers with age. Fertil Steril. 2012;97(1):238-43. https://doi.org/10.1016/j.fertnstert.2011.10.031

8. Ulrich ND, Marsh EE. Ovarian Reserve Testing: A Review of the Options, Their Applications, and Their Limitations. Clin Obstet Gynecol. 2019;62(2):228-37. https://doi.org/10.1097/grf.0000000000000445

9. Carson SA, Kallen AN. Diagnosis and Management of Infertility: A Review. Jama. 2021;326(1):65-76. https://doi.org/10.1001/jama.2021.4788

10. Moolhuijsen LME, Visser JA. Anti-Müllerian Hormone and Ovarian Reserve: Update on Assessing Ovarian Function. J Clin Endocrinol Metab. 2020;105(11):3361-73. https://doi.org/10.1210/clinem/dgaa513

11. Iwase A, Osuka S, Goto M, Murase T, Nakamura T, Takikawa S, et al. Clinical application of serum anti-Müllerian hormone as an ovarian reserve marker: A review of recent studies. J Obstet Gynaecol Res. 2018;44(6):998-1006. https://doi.org/10.1111/jog.13633

12. Jeppesen JV, Anderson RA, Kelsey TW, Christiansen SL, Kristensen SG, Jayaprakasan K, et al. Which follicles make the most anti-Mullerian hormone in humans? Evidence for an abrupt decline in AMH production at the time of follicle selection. Mol Hum Reprod. 2013;19(8):519-27. https://doi.org/10.1093/molehr/gat024

13. Hehenkamp WJ, Looman CW, Themmen AP, de Jong FH, Te Velde ER, Broekmans FJ. Anti-Müllerian hormone levels in the spontaneous menstrual cycle do not show substantial fluctuation. J Clin Endocrinol Metab. 2006;91(10):4057-63. https://doi.org/10.1210/jc.2006-0331

14. Khodavirdilou R, Pournaghi M, Rastgar Rezaei Y, Hajizadeh K, Khodavirdilou L, Javid F, et al. Does Anti-Müllerian hormone vary during a menstrual cycle? A systematic review and meta-analysis. J Ovarian Res. 2022;15(1):78. https://doi.org/10.1186/s13048-022-01006-z

15. Kotanidis L, Nikolettos K, Petousis S, Asimakopoulos B, Chatzimitrou E, Kolios G, et al. The use of serum anti-Mullerian hormone (AMH) levels and antral follicle count (AFC) to predict the number of oocytes collected and availability of embryos for cryopreservation in IVF. J Endocrinol Invest. 2016;39(12):1459-64. https://doi.org/10.1007/s40618-016-0521-x

16. Li HWR, Nelson SM. Clinical Application of AMH Measurement in Assisted Reproduction. Front Endocrinol (Lausanne). 2020;11:606744. https://doi.org/10.3389/fendo.2020.606744

17. Pilsgaard F, Grynnerup AG, Løssl K, Bungum L, Pinborg A. The use of anti-Müllerian hormone for controlled ovarian stimulation in assisted reproductive technology, fertility assessment and -counseling. Acta Obstet Gynecol Scand. 2018;97(9):1105-13. https://doi.org/10.1111/aogs.13334

18. Majumder K, Gelbaya TA, Laing I, Nardo LG. The use of anti-Müllerian hormone and antral follicle count to predict the potential of oocytes and embryos. Eur J Obstet Gynecol Reprod Biol. 2010;150(2):166-70. https://doi.org/10.1016/j.ejogrb.2010.02.029

19. Tal R, Tal O, Seifer BJ, Seifer DB. Antimüllerian hormone as predictor of implantation and clinical pregnancy after assisted conception: a systematic review and meta-analysis. Fertil Steril. 2015;103(1):119-30.e3. https://doi.org/10.1016/j.fertnstert.2014.09.041

20. Coelho Neto MA, Ludwin A, Borrell A, Benacerraf B, Dewailly D, da Silva Costa F, et al. Counting ovarian antral follicles by ultrasound: a practical guide. Ultrasound Obstet Gynecol.

2018;51(1):10-20. https://doi.org/10.1002/uog.18945
21. Ata B, Bosch E, Broer S, Griesinger G, Grynberg M, Kolibianakis E, et al. ESHRE guideline: ovarian stimulation for IVF/ICSI: an update in 2025†. Hum Reprod. 2026;41(4):498-514. https://doi.org/10.1093/humrep/deag018
22. Reis AB, Leal C, Barreiro M, Tomé A, Vale-Fernandes E. Anti-Müllerian hormone as a predictor of the number of oocytes obtained during in vitro fertilization treatments. JBRA Assist Reprod. 2024;28(4):597-603. https://doi.org/10.5935/1518-0557.20240049
23. Ovarian Stimulation T, Bosch E, Broer S, Griesinger G, Grynberg M, Humaidan P, et al. ESHRE guideline: ovarian stimulation for IVF/ICSI(†). Hum Reprod Open. 2020;2020(2):hoaa009. https://doi.org/10.1093/hropen/hoaa009
24. Fanton M, Cho JH, Baker VL, Loewke K. A higher number of oocytes retrieved is associated with an increase in fertilized oocytes, blastocysts, and cumulative live birth rates. Fertil Steril. 2023;119(5):762-9. https://doi.org/10.1016/j.fertnstert.2023.01.001
25. Anagnostopoulou C, Maldonado Rosas I, Singh N, Gugnani N, Chockalingham A, Singh K, et al. Oocyte quality and embryo selection strategies: a review for the embryologists, by the embryologists. Panminerva Med. 2022;64(2):171-84. https://doi.org/10.23736/s0031-0808.22.04680-8
26. Hattori Y, Sato T, Okada H, Saito C, Sugiura-Ogasawara M. Comparison of follicular fluid and serum anti-Mullerian hormone levels as predictors of the outcome of assisted reproductive treatment. Eur J Obstet Gynecol Reprod Biol. 2013;169(2):252-6. https://doi.org/10.1016/j.ejogrb.2013.03.021
27. Ye F, Du Y, Cao W, Jiang R, Qi Q, Sun H, et al. Higher serum AMH level is associated with better pregnancy outcomes of IVF/ICSI assisted pregnancy in infertile patients under 35 years old. Drug Discov Ther. 2023;17(4):299-303. https://doi.org/10.5582/ddt.2023.01044
28. Zheng H, Chen S, Du H, Ling J, Wu Y, Liu H, et al. Ovarian response prediction in controlled ovarian stimulation for IVF using anti-Müllerian hormone in Chinese women: A retrospective cohort study. Medicine (Baltimore). 2017;96(13):e6495. https://doi.org/10.1097/md.0000000000006495
29. Peigné M, Bernard V, Dijols L, Creux H, Robin G, Hocké C, et al. Using serum anti-Müllerian hormone levels to predict the chance of live birth after spontaneous or assisted conception: a systematic review and meta-analysis. Hum Reprod. 2023;38(9):1789-806. https://doi.org/10.1093/humrep/dead147