



# AMH; Over Rezerv Testleri İçinde Yeri Farklı mı ?

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Üreme Endokrinolojisi ve İnfertilite Bilim Dalı

# Over rezerv testleri ve AMH

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Cumhuriyet

zamanında, bilgiden sağlanacak  
güçlü ve yüksek kaliteli  
kavrayıcıdır. 1918

Cumhuriyet

1918-1919, 1919-1920 ve  
1920-1921  
1921-1922'dir.

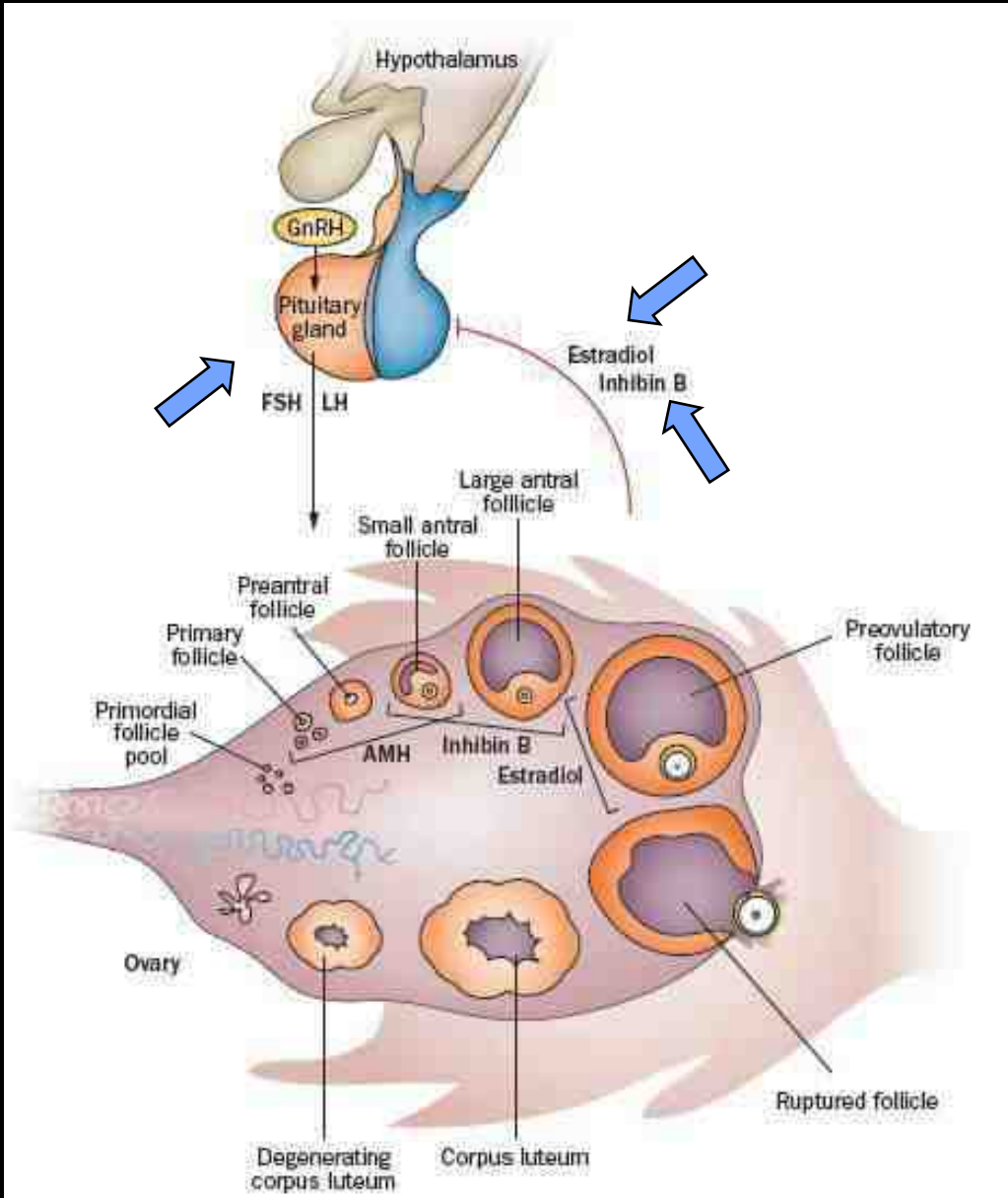
Bu rejim,

halkın gelişimini ve yükselişini  
sağlayan, onlardan esirlik,  
soysuzluk, dalkavukluk hislerini  
uzaklaştıran bir yoldur.



# Over rezervinin önemi

- Hastanın gebelik şansı hakkında bilgilendirilmesi,
- İleri yaştaki hastada kontrasepsiyon planlanması,
- İnfertilite tedavisinde maliyet belirlenmesi,
- Oosit donasyonu veya evlat edinme,
- Over rezervinin yanlış veya eksik değerlendirilmesinin olumsuz sonuçları. (İnfertilite, Menopoz, Donasyon)

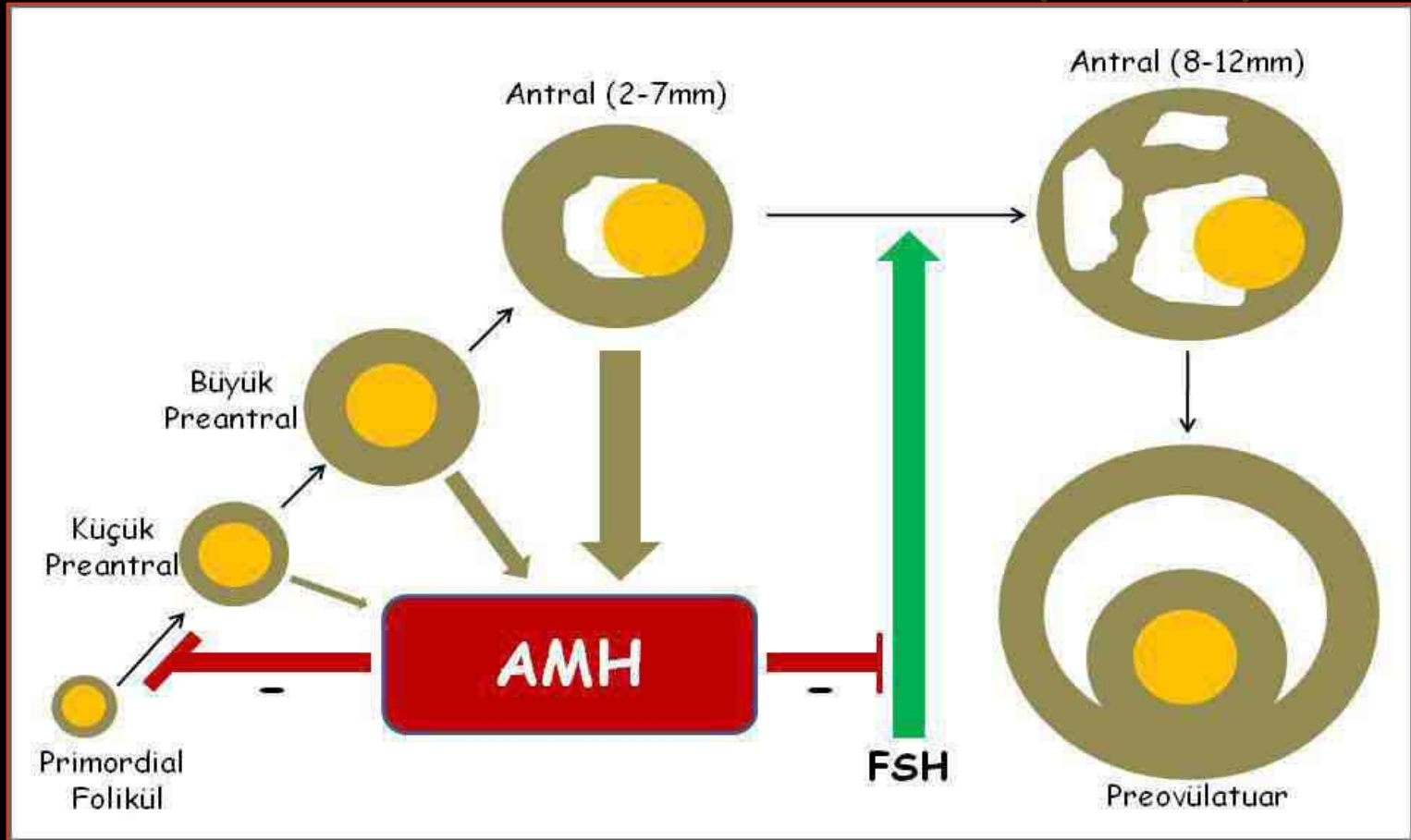


## AMH

### Anti Müllerien Hormon

- ❖ Primer ve küçük antral foliküllerden salgılanır.
- ❖ Granülosa hücreleri salgılar.
- ❖ FSH ile etkileşimi yok veya çok azdır.
- ❖ Overin foliküler yapısının tek markörüdür.

# Anti Müllerien Hormon (AMH)



- 1.Foliküler recuitmenti inhibe eder.
- 2.Peantral ve antral folikül gelişimini inhibe eder.

Sahmay S.

Visser JA et al.:Reproduction. 131; 1, 2006

La Marca A. et al.:Human Reproduction Update, 16:113, 2010.

# Stages of Reproductive Aging Workshop - STRAW

|                                      |                     |         |            |                                |                                                                               |                                    |                                |                                    |                    |                                           |
|--------------------------------------|---------------------|---------|------------|--------------------------------|-------------------------------------------------------------------------------|------------------------------------|--------------------------------|------------------------------------|--------------------|-------------------------------------------|
| Menarche                             |                     |         |            |                                | FMP (0)                                                                       |                                    |                                |                                    |                    |                                           |
| Stage                                | -5                  | -4      | -3b        | -3a                            | -2                                                                            | -1                                 | +1 a                           | +1b                                | +1c                | +2                                        |
| Terminology                          | REPRODUCTIVE        |         |            |                                | MENOPAUSAL TRANSITION                                                         |                                    | POSTMENOPAUSE                  |                                    |                    |                                           |
|                                      | Early               | Peak    | Late       |                                | Early                                                                         | Late                               | Early                          |                                    |                    | Late                                      |
|                                      |                     |         |            |                                | Perimenopause                                                                 |                                    |                                |                                    |                    |                                           |
| Duration                             | variable            |         |            |                                | variable                                                                      | 1-3 years                          | 2 years (1+1)                  | 3-6 years                          | Remaining lifespan |                                           |
| PRINCIPAL CRITERIA                   |                     |         |            |                                |                                                                               |                                    |                                |                                    |                    |                                           |
| Menstrual Cycle                      | Variable to regular | Regular | Regular    | Subtle changes in Flow/ Length | Variable Length Persistent ≥7- day difference in length of consecutive cycles | Interval of amenorrhea of ≥60 days |                                |                                    |                    |                                           |
| SUPPORTIVE CRITERIA                  |                     |         |            |                                |                                                                               |                                    |                                |                                    |                    |                                           |
| Endocrine<br>FSH<br>AMH<br>Inhibin B |                     |         | Low<br>Low | Variable*<br>Low<br>Low        | ↑ Variable*<br>Low<br>Low                                                     | ↑ >25 IU/L**<br>Low<br>Low         | ↑ Variable<br>Low<br>Low       | Stabilizes<br>Very Low<br>Very Low |                    |                                           |
| Antral Follicle Count                |                     |         | Low        | Low                            | Low                                                                           | Low                                | Very Low                       | Very Low                           |                    |                                           |
| DESCRIPTIVE CHARACTERISTICS          |                     |         |            |                                |                                                                               |                                    |                                |                                    |                    |                                           |
| Symptoms                             |                     |         |            |                                |                                                                               | Vasomotor symptoms Likely          | Vasomotor symptoms Most Likely |                                    |                    | Increasing symptoms of urogenital atrophy |

\* Blood draw on cycle days 2-5 ↑ = elevated

\*\*Approximate expected level based on assays using current international pituitary standard<sup>67-69</sup>

- R.P. 37 y. 5 yıllık primer infertile.
- 3 IVF denemesi : Gebelik yok.
- Menstruel düzen: Oligomenore (45/5/2)
- TVUSG (A3) : Antral folikül, endometrium: 4.5 mm.
- FSH (A3): 119 mIU/ml (1/2008) (farkli merkez)
- 59 mIU/ml (4/2008)
- 17 mIU/ml (6/2008)
- LH: 4.5 mIU/ml (6/2008)
- E2: 51 pg/ml
- AMH: 3.3 ng/ml
- INHIBIN B: 92 pg/ml
- HSG: Normal.
- Spermioqram: Normal.

- 450 IU Gonadotropinle tedaviye başlandı
- OPU'da 1 oosit aspire edildi (postmatur M2)
- ICSI
- 1 embriyo G1, 8 hücre gelişti
- 3.gün transfer edildi
- 12 Haftalık (FKA+) gebelik 16. haftada sonlandı

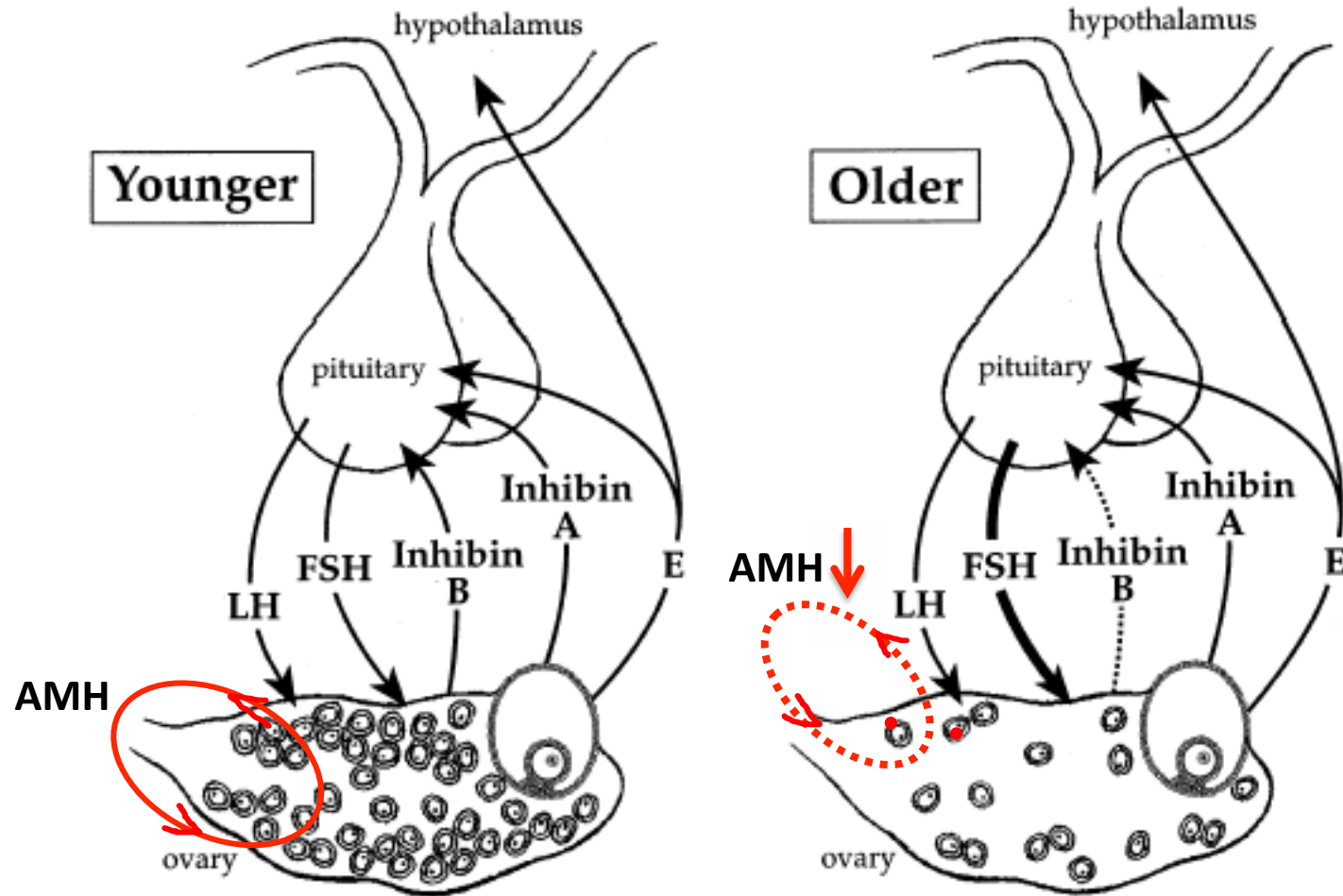
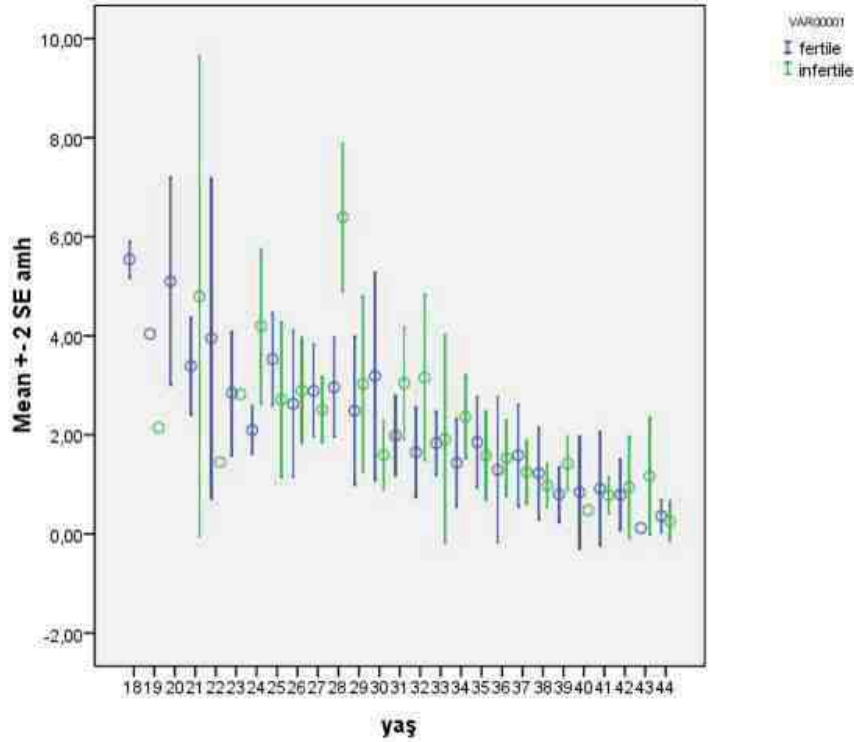


Fig. 15. Aging and the female reproductive system. The ovary appears to control the late stages of reproductive aging. When the ovaries of an older woman drop below a critical threshold of preantral follicles there is a decrease in the inhibin B level which, in turn, causes a monotropic FSH rise which, in turn, causes an accelerated loss of all classes of follicles which, subsequently, leads to menopause at a much earlier age than would occur if there was no change in the rate of follicle depletion.

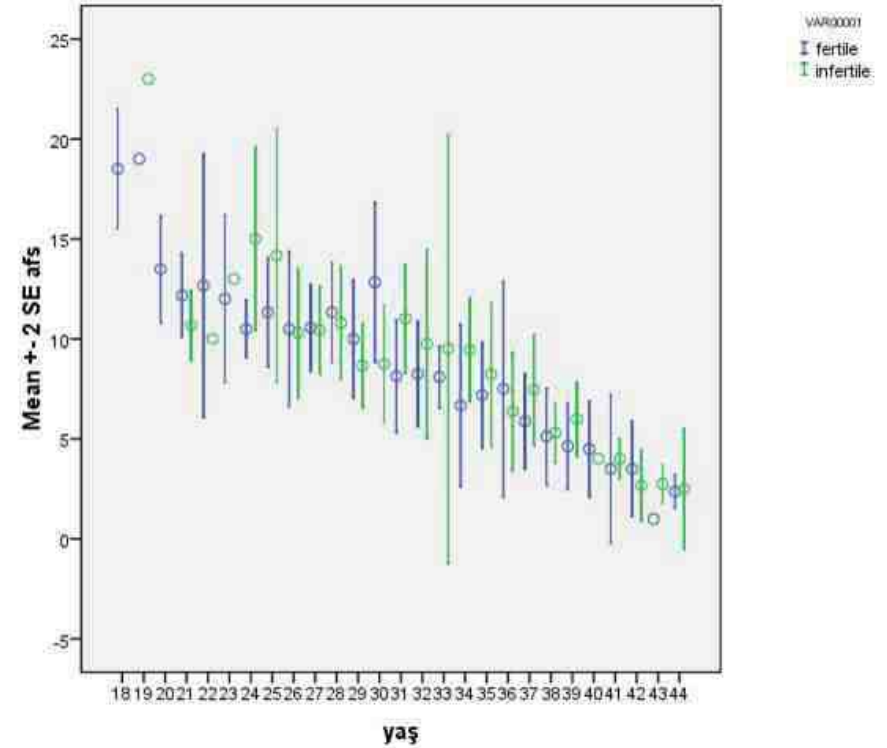
# Serum anti-müllerian hormon, bazal FSH düzeyleri ve bazal antral folikül sayımının fertil ve infertil popülasyonda prospektif karşılaştırılması

## Uzmanlık Tezi: Dr. Şeyma Banu Bozkurt

AMH



AFS



# AMH düzeyi, gebelik oranları ile pozitif ilişkilidir

J Assist Reprod Genet (2012) 29:589–595  
DOI 10.1007/s10815-012-9754-6

ASSISTED REPRODUCTION TECHNOLOGIES

## Serum Anti-müllerian hormone, follicle stimulating hormone and antral follicle count measurement cannot predict pregnancy rates in IVF/ICSI cycles

Sezai Sahmay • Gökhan Demirayak • Onur Guralp •  
Pelin Ocal • Levent M. Senturk • Engin Oral • Tulay Irez



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J Assist Reprod Genet (2012) 29:589–595

**Table 2** Pregnancy rates according to the quartiles of AMH, FSH and AFC

|     | <25%          |                | %25–75           |                | >75%          |                |
|-----|---------------|----------------|------------------|----------------|---------------|----------------|
|     | Range (ng/mL) | Pregnancy rate | Range (ng/mL)    | Pregnancy rate | Range (ng/mL) | Pregnancy rate |
| AMH | <1.81 (n=47)  | 21.3%          | 1.81-4.92 (n=94) | 24.5%          | >4.92 (n=48)  | 29.2%          |
| FSH | <4.92 (n=45)  | 23.8%          | 4.92-6.97 (n=90) | 20%            | >6.97 (n=45)  | 22.2%          |
| AFC | <5 (n=32)     | 18.8%          | 5-10.5 (n=106)   | 24.5%          | >10.5 (n=43)  | 34.9%          |

P values for: Quartiles of AMH: 0.668, quartiles of FSH: 0.071, quartiles of AFC: 0.252

AFC, antral follicle count; AMH, anti-müllerian hormone; FSH, follicle stimulating hormone

Sahmay S, Demirayak G, Guralp O, Ocal P, Senturk LM, Oral E, Irez T  
J Assist Reprod Genet. 29:589-595, 2012

# AMH, FSH, AFS

## IVF/ICSI sikluslarında gebelik öngörüsünde yararsızdır

Table 1. Comparison of demographical and clinical parameters in pregnant and non-pregnant women

|                                 | Pregnancy (+) (n=47) | Pregnancy (-) (n=142) | P value |
|---------------------------------|----------------------|-----------------------|---------|
| Age (years)                     | 30.7±4.0             | 31.7±4.7              | 0.199   |
| Duration of infertility (years) | 6.6±4.2              | 7.0±4.2               | 0.593   |
| BMI (kg/m <sup>2</sup> )        | 24.0±2.8             | 24.2±2.8              | 0.673   |
| AMH (ng/mL)                     | 3.9±2.5              | 3.8±3.0               | 0.831   |
| LH (mIU/ml)                     | 3.8±1.9              | 4.2±2.4               | 0.278   |
| FSH (mIU/ml)                    | 5.7±2.1              | 6.2±2.0               | 0.116   |
| E2 (pg/ml)                      | 40.0±19.0            | 46.0±25.1             | 0.166   |
| TSH (mIU/liter)                 | 1.6±0.8              | 1.6±1.0               | 0.904   |
| Inhibin-B (pg/mL)               | 88.0±56.8            | 88.7±53.0             | 0.940   |
| AFC                             | 9.6±5.1              | 8.7±5.3               | 0.340   |
| Total Oocyte                    | 9.2±4.5              | 9.0±5.1               | 0.793   |

Sahmay S, Demirayak G, Guralp O, Ocal P, Senturk LM, Oral E, Irez T  
*J Assist Reprod Genet.* 29:589-595, 2012

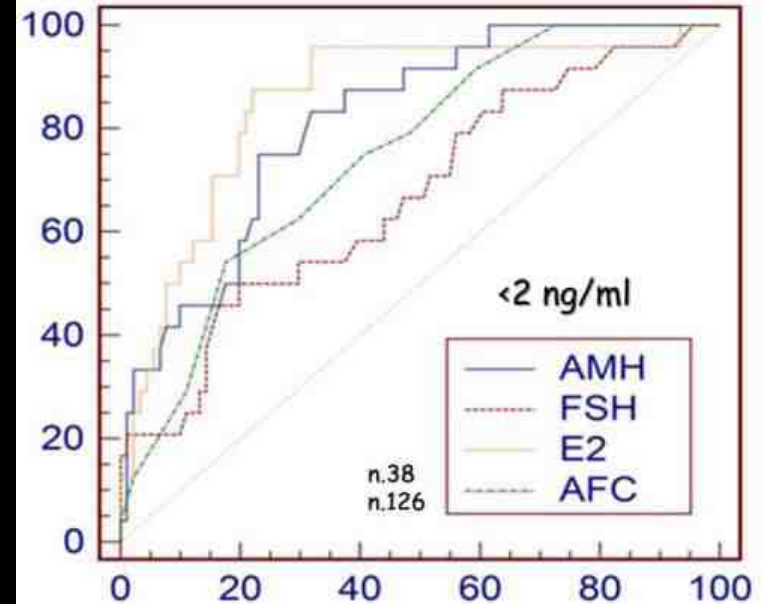
# Kötü yanıt - AMH

Reprod Med Biol (2011) 10:9–14  
DOI 10.1007/s12522-010-0066-1

## ORIGINAL ARTICLE

### Serum anti-Müllerian hormone level as a predictor of poor ovarian response in in vitro fertilization patients

Sezai Sahmay · Meral Cetin · Pelin Ocal ·  
Semih Kaleli · Hulya Senol · Fatih Birol ·  
Tulay Irez



**Table 2** Potential of day 3 AMH and FSH and hCG day E2 levels and AFC to predict poor responders

|                    | Poor responders ( <i>n</i> = 38) |             |              |         |             |             |
|--------------------|----------------------------------|-------------|--------------|---------|-------------|-------------|
|                    | ROC AUC                          | 95% CI      | Significance | Cut-off | Sensitivity | Specificity |
| AMH (ng/mL)        | 0.818                            | 0.745–0.891 | 0.01         | ≤2      | 78.9        | 73.8        |
| FSH (mIU/mL)       | 0.668                            | 0.562–0.773 | 0.01         | >6.7    | 60.5        | 69.0        |
| hCG day E2 (pg/mL) | 0.860                            | 0.775–0.946 | 0.01         | ≤791    | 88.0        | 78.3        |
| AFC ( <i>n</i> )   | 0.760                            | 0.678–0.842 | 0.01         | ≤6      | 80.6        | 56.6        |

AMH anti-Müllerian hormone, FSH follicle stimulating hormone, E2 estradiol, AFC antral follicle count, CI confidence interval, ROC AUC receiver operating curve analysis area under curve

Comparison of basal and clomiphene citrate induced FSH and inhibin B, ovarian volume and antral follicle counts as ovarian reserve tests and predictors of poor ovarian response in IVF. Erdem M, Erdem A, Gursoy R and Biberoglu K (2004) J Assist Reprod Genet 21,37–45.

Table IV. Area Under Curve for Each Test According to ROC Analysis to Discriminate Between Poor and Normal Responded Treatment Cycles

| Variable                                 | AUC (ROC) | 95% CI    |
|------------------------------------------|-----------|-----------|
| Basal inhibin B                          | 0.71      | 0.53–0.90 |
| Basal FSH                                | 0.77      | 0.59–0.94 |
| Age                                      | 0.79      | 0.63–0.96 |
| → Mean antral follicle counts            | 0.80      | 0.64–0.95 |
| → Abnormal CCCT                          | 0.81      | 0.66–0.97 |
| → Mean ovarian volume (cm <sup>3</sup> ) | 0.82      | 0.66–0.97 |

Comparison of basal and clomiphene citrate induced FSH and inhibin B, ovarian volume and antral follicle counts as ovarian reserve tests and predictors of poor ovarian response in IVF. Erdem M, Erdem A, Gursoy R and Biberoglu K (2004) J Assist Reprod Genet 21,37–45.

- ART sikluslarında gebeliği öngörmeye hormonal ve sonografik değişkenlerin multilogistic regresyon analizinde
  - Yaş tek bağımsız gebelik belirteci (OR:0.72, %95 CI: 0.53-0.99, sensitivity=%75, specificity=%85)

## SONUÇ:

Yaş oosit kalitesinin direkt yansıtır >>>>> gebelik oranları ile ilgili Bazal Hormonlar (FSH, Inhibin B, AMH) ve ultrason (AFC ve over volümü) folikül ve dolayısıyla oosit sayısını >>>>>- düşük over rezervini yansıtır

## Antral follicle count determines poor ovarian response better than anti-müllerian hormone but age is the only predictor for live birth in in vitro fertilization cycles

Mehmet Firat Mutlu • Mehmet Erdem • Ahmet Erdem •  
Sule Yildiz • Ilknur Mutlu • Ozgur Arisoy •  
Mesut Oktem

**Table 1** Patient and cycle characteristics of study groups according to ovarian response

|                                       | Normoresponders<br><i>n</i> =143 | Poor responders<br><i>n</i> =49 | <i>p</i> value |
|---------------------------------------|----------------------------------|---------------------------------|----------------|
| Age (Years)                           | 31.2±5.4                         | 36.5±4.7                        | <0.001         |
| Body mass index (kg/m <sup>2</sup> )  | 24.9±4.4                         | 25.8±5.3                        | NS             |
| Duration of infertility (months)      | 86.6±63.1                        | 97.8±82.2                       | NS             |
| Mean antral follicle counts (n)       | 11.3±5.5                         | 3.3±2.4                         | <0.001         |
| Mean AMH (ng/ml)                      | 3.17±2.70                        | 0.87±1.03                       | <0.001         |
| Basal FSH levels (mIU/ml)             | 6.3±2.2                          | 11.7±8.3                        | <0.001         |
| Duration of stimulation (days)        | 10.5±2.0                         | 11.6±3.3                        | <0.05          |
| Total gonadotropin dose (IU)          | 2953±1978                        | 3838±1692                       | <0.01          |
| Peak E <sub>2</sub> (pg/ml)           | 1941.1±1389.1                    | 659.8±804.2                     | <0.001         |
| Peak progesterone (ng/ml)             | 0.97±0.79                        | 0.67±0.68                       | <0.05          |
| Retrieved oocyte number (n)           | 13.2±6.8                         | 1.9±1.0                         | <0.001         |
| Metaphase II oocyte number (n)        | 10.5±6.0                         | 1.5±1.0                         | <0.001         |
| Clinical pregnancy rate per cycle (%) | 42                               | 10.2                            | <0.001         |
| Live birth per cycle (%)              | 34.3                             | 10.2                            | <0.01          |

NS Not significant

**Table 3** Area under curve for each test according to ROC analysis to discriminate between poor and normal responded treatment cycles

|              | AUC<br>(ROC) | 95 % CI   |
|--------------|--------------|-----------|
| Basal<br>FSH | 0.75         | 0.66–0.85 |
| Age          | 0.76         | 0.68–0.84 |
| AMH          | 0.86         | 0.80–0.92 |
| AFC          | 0.93         | 0.89–0.98 |

Ortalama.AFC cut-off - 5.5 (sensit.89 % ve spec. 87%).  
Ortalama. AMH cut-off- 0.94 ng/mL (sens.71 % ve spec. 85 %.)

Hem AFC hem de AMH seviyeleri eşik değerin altında olanlarda canlı doğum oranı 5.4 kez düşük (5.6 % vs. 30.4 %)  
Bu grupta 3 canlı doğum

# AMH >1ng/ml - Gebelik oranları (n.226)

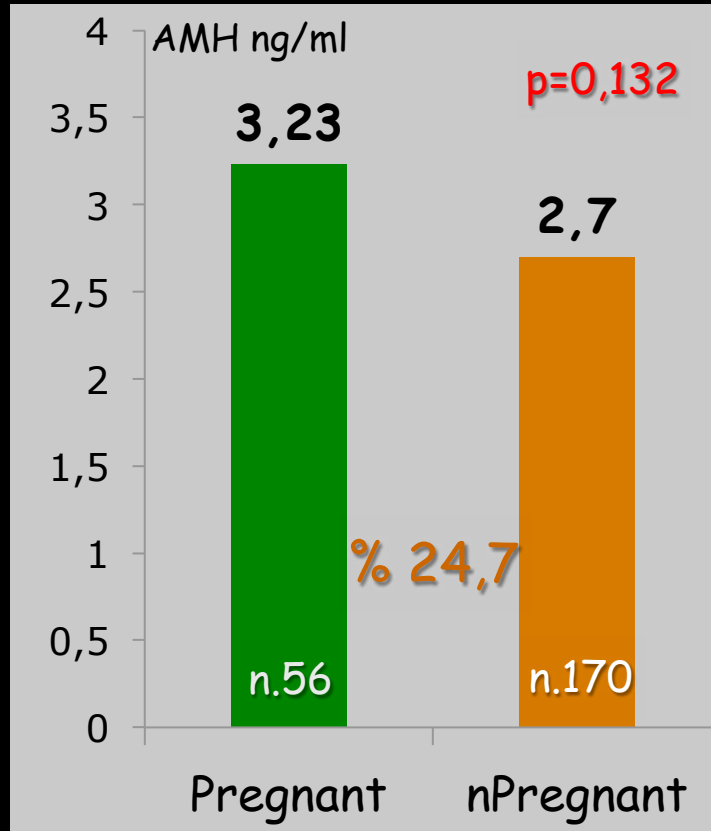
|                          | Gebelik+   | Gebelik-   | p         |
|--------------------------|------------|------------|-----------|
| Yaş                      | 31,32±4,0  | 32,27±4,4  | NS        |
| İnfertilite Süresi (yıl) | 6,46±4,1   | 6,67±4,0   | NS        |
| VKİ                      | 25,02±4,7  | 25,13±4,1  | NS        |
| AMH                      | 3,23±2,9   | 2,70±1,9   | NS(0,132) |
| E2                       | 41,04±22,0 | 46,22±23,1 | NS        |
| LH                       | 4,17±2,8   | 3,87±2,0   | NS        |
| FSH                      | 5,67±2,0   | 6,16±2,2   | NS        |
| TSH                      | 1,70±0,7   | 1,91±1,1   | NS        |
| PRL                      | 17,7±11,9  | 16,27±6,0  | NS        |
| Stimulasyon Süresi       | 9,49±1,8   | 9,14±1,9   | NS        |
| Total Ünite              | 2333±887   | 2498±1085  | NS        |
| Antral follikül sayısı   | 8,71±4,3   | 7,65±3,6   | NS        |
| Total oosit              | 8,50±4,2   | 7,6±4,3    | NS        |
| HCG günü Follikül sayısı | 12,33±4,9  | 10,78±5,2  | NS        |

# AMH <1ng/ml - Gebelik oranları (n.100)

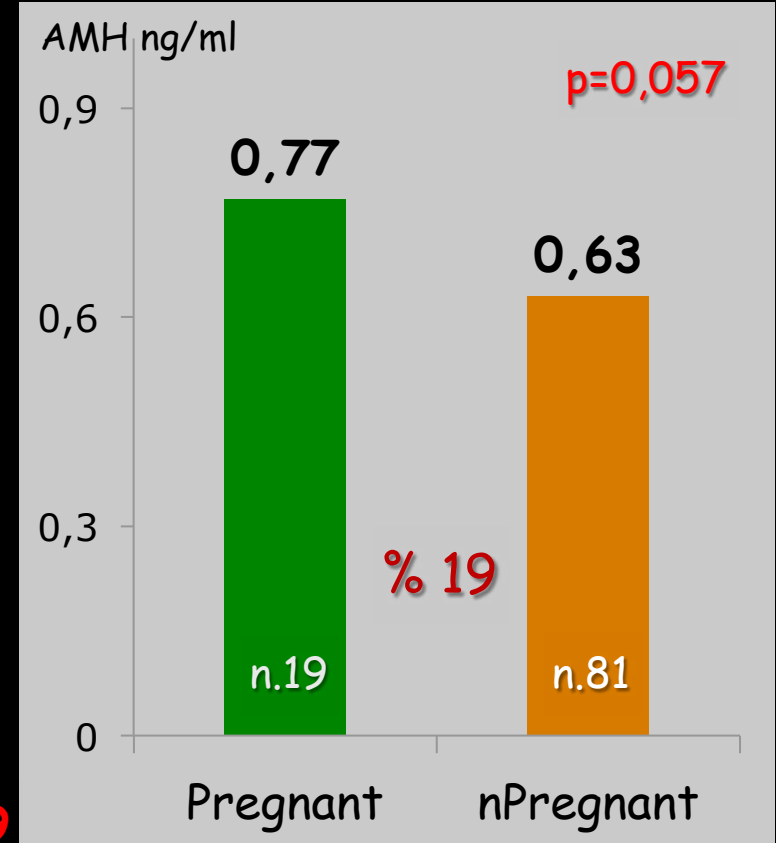
|                          | Gebelik+   | Gebelik-   | p        |
|--------------------------|------------|------------|----------|
| Yaş                      | 31,31±4,0  | 34,09±4,35 | 0,013    |
| İnfertilite Süresi (yıl) | 6,05±3,4   | 6,16±4,7   | NS       |
| VKİ                      | 25,38±3,0  | 25,9±4,7   | NS       |
| AMH                      | 0,77±0,19  | 0,63±0,31  | NS(0.57) |
| E2                       | 87,82±61,7 | 70,78±65,3 | NS       |
| LH                       | 4,2±2,5    | 4,01±2,8   | NS       |
| FSH                      | 6,52±2,6   | 7,2±3,0    | NS       |
| TSH                      | 2,09±1,4   | 1,7±0,9    | NS       |
| PRL                      | 15,88±4,9  | 16,99±7,2  | NS       |
| Stimulasyon Süresi       | 9,15±1,3   | 9,23±2,0   | NS       |
| Total Ünite              | 2713±841   | 3179±1059  | NS       |
| Antral follikül sayısı   | 6,66±4,3   | 5,18±2,7   | NS       |
| Total oosit              | 5,78±4,6   | 4,01±3,1   | 0,046    |
| HCG günü Follikül sayısı | 6,11±3,7   | 5,64±3,7   | NS       |

# AMH düzeyi - Gebelik oranları

AMH > 1ng/ml



AMH < 1ng/ml



|        | Gebelik+ |       | Gebelik- |       | Toplam |      |
|--------|----------|-------|----------|-------|--------|------|
| AMH>1  | 56       | %24.8 | 170      | %75.2 | 226    | %100 |
| AMH≤1  | 19       | %19   | 81       | % 81  | 100    | %100 |
| Toplam | 75       | % 23  | 251      | % 77  | 326    | %100 |

# İleri yaşta AMH ve gebelik öngörüsü

|                                                     | Pregnant (N:36)   | Non-pregnant (N:204) | p      |
|-----------------------------------------------------|-------------------|----------------------|--------|
| Age, median (min-max)                               | 37.0 (35–41)      | 38.0 (35–50)         | 0.005  |
| BMI, mean (kg/m <sup>2</sup> )                      | 26.80±4.90        | 26.46±4.56           | 0.683  |
| Duration of infertility<br>(years) median (min-max) | 5.5 (1–19)        | 5.0 (1–23)           | 0.251  |
| AMH (ng/ml), median (min-max)                       | 3.20 (0.63–9.60)  | 1.15 (0.01–14.9)     | <0.001 |
| FSH (mIU/ml), median (min-max)                      | 5.80 (2.77–14.0)  | 6.90 (1.25–80.9)     | 0.069  |
| LH (mIU/ml), median (min-max)                       | 5.0 (1.79–9.90)   | 4.1 (0.5–82.0)       | 0.262  |
| E2 (pg/ml)                                          | 43.0 (5.25–259.0) | 48.0 (7.0–565.0)     | 0.403  |
| Inhibin-B (pg/mL), mean                             | 79.86±47.32       | 74.96±65.39          | 0.803  |
| TSH (mIU/l), mean                                   | 2.01±1.14         | 2.06±1.16            | 0.793  |
| Prolactin, mean                                     | 16.03±6.95        | 16.58±9.17           | 0.746  |
| AFC (n), median (min-max)                           | 7 (1–20)          | 5 (0–20)             | 0.004  |
| Total Oocyte, median (min-max)                      | 7 (1–19)          | 4 (0–30)             | <0.001 |
| Poor responder n/N (%)                              | 3/36 (8.33)       | 75/204 (36.76)       | <0.001 |
| Cancellation n/N (%)                                |                   | 15/204 (7.35)        |        |

Sahmay S, Oncul M, Tuten A, Tok A, Acikgoz AS, Cepni I. J Assist Reprod Genet. 2014 31:1469-74. doi: 10.1007/s10815-014-0324-y. Epub 2014 Sep 4.

# İleri yaşta AMH ve gebelik öngörüsü

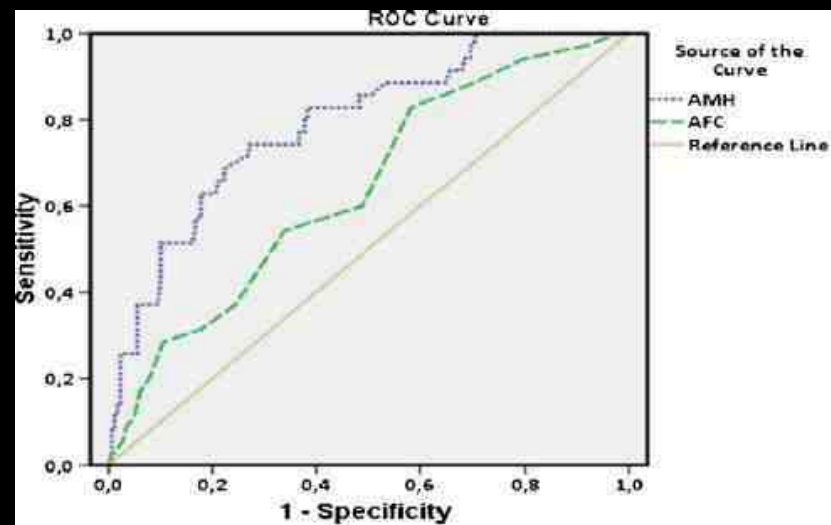
J Assist Reprod Genet

DOI 10.1007/s10815-014-0324-y

ASSISTED REPRODUCTION TECHNOLOGIES

## Anti-Müllerian hormone levels as a predictor of the pregnancy rate in women of advanced reproductive age

Sezai Sahmay • Mahmut Oncul • Abdullah Tuten •  
Abdullah Tok • Abdullah Serdar Acikgoz • Ismail Cepni



J Assist Reprod Genet

Table 4 Pregnancy rates according to age and pregnancy cut-off levels

|                       | AMH < 1.91       |                 | p     | AMH ≥ 1.91       |                 | p     |
|-----------------------|------------------|-----------------|-------|------------------|-----------------|-------|
|                       | Age 35–38 (N=58) | Age ≥ 38 (N=95) |       | Age 35–38 (N=51) | Age ≥ 38 (N=36) |       |
| Pregnancy (+), n, (%) | 4 (6.9)          | 5 (5.3)         | 0.676 | 17 (33.3)        | 10 (27.8)       | 0.581 |
| Pregnancy (-), n, (%) | 54 (93.1)        | 90 (94.7)       |       | 34 (66.6)        | 26 (72.2)       |       |

AMH, anti-müllerian hormone. Statistically significant:  $P < 0.05$

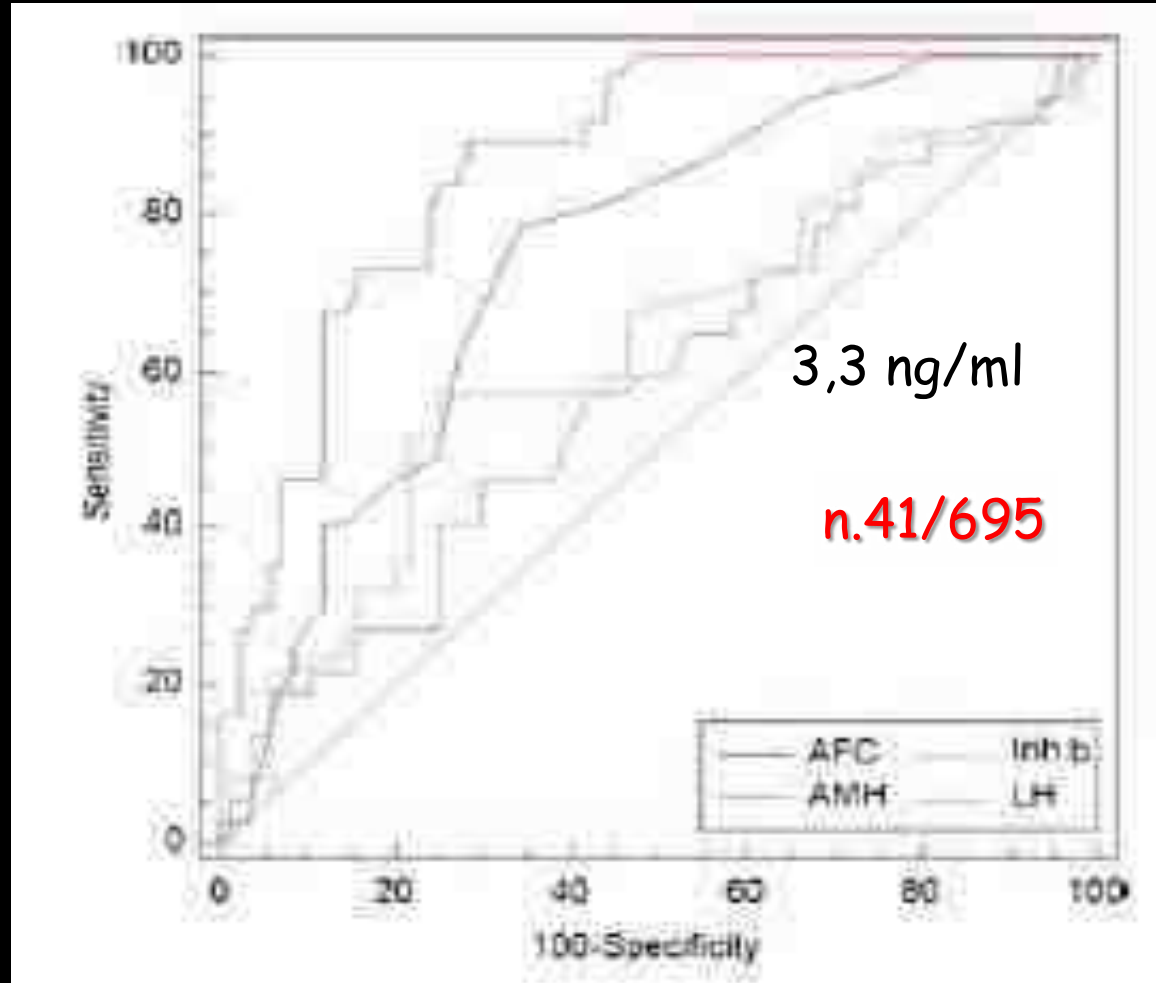
Sahmay S, Oncul M, Tuten A, Tok A, Acikgoz AS, Cepni I. J Assist Reprod Genet. 2014 31:1469-74. doi: 10.1007/s10815-014-0324-y. Epub 2014 Sep 4.

# AMH levels according to age in PCOS - nonPCOS

|             | Age of PCOS (year) | Age of Control (year) | p (Age) | AMH-PCOS (ng/ml) | AMH-Control (ng/ml) | p (AMH) |
|-------------|--------------------|-----------------------|---------|------------------|---------------------|---------|
| 35-40 years | 36.4±1.6 (n=29)    | 37.0±1.4 (n=130)      | 0.06    | 5.4±2.2          | 1.7±1.3             | 0.001   |
| 29-34 years | 31.1±1.6 (n=99)    | 31.3±1.6 (n=143)      | 0.17    | 6.8±3.4          | 2.3±1.6             | 0.001   |
| 23-28 years | 25.4±1.7 (n=174)   | 26.1±1.5 (n=83)       | 0.01*   | 7.6±4.1          | 2.7±1.8             | 0.001   |
| 17-22 years | 19.4±1.9 (n=117)   | 19.9±1.3 (n=16)       | 0.31    | 7.8±4.5          | 3.9±2.5             | 0.001   |

# OHSS öngörüsü-AMH sınır değeri

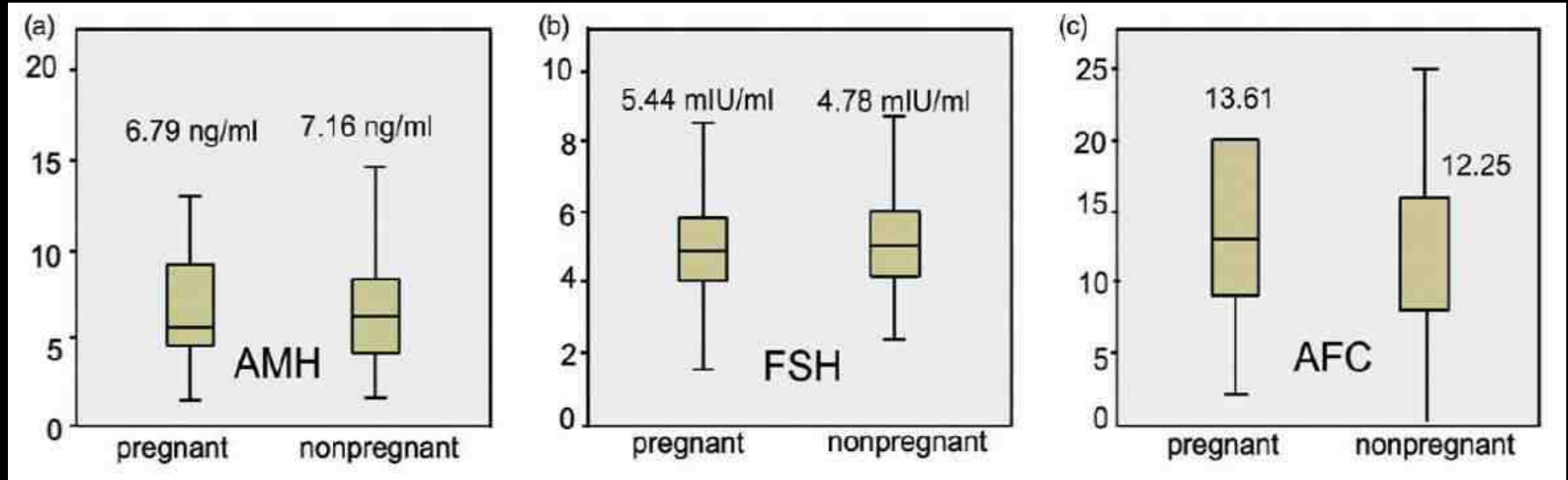
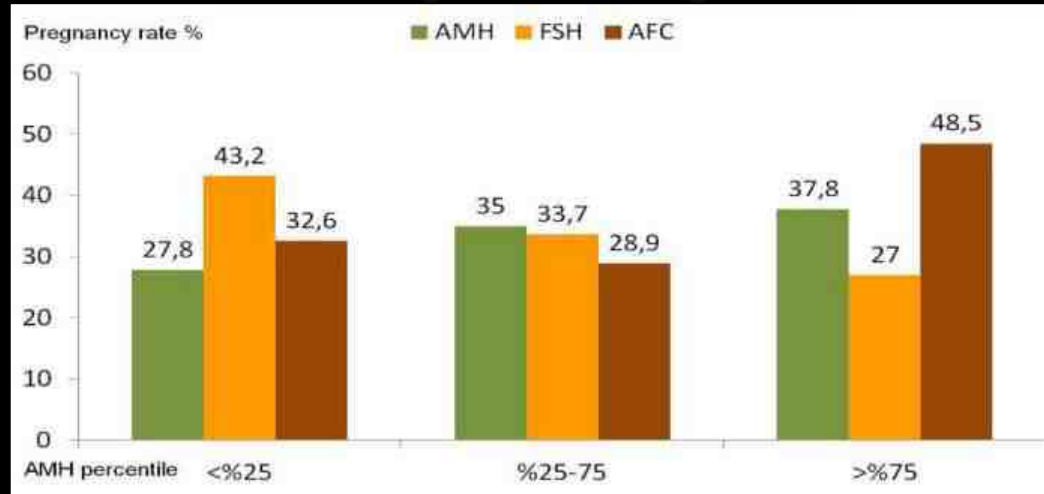
Sensitivite %90



Spesifite %71

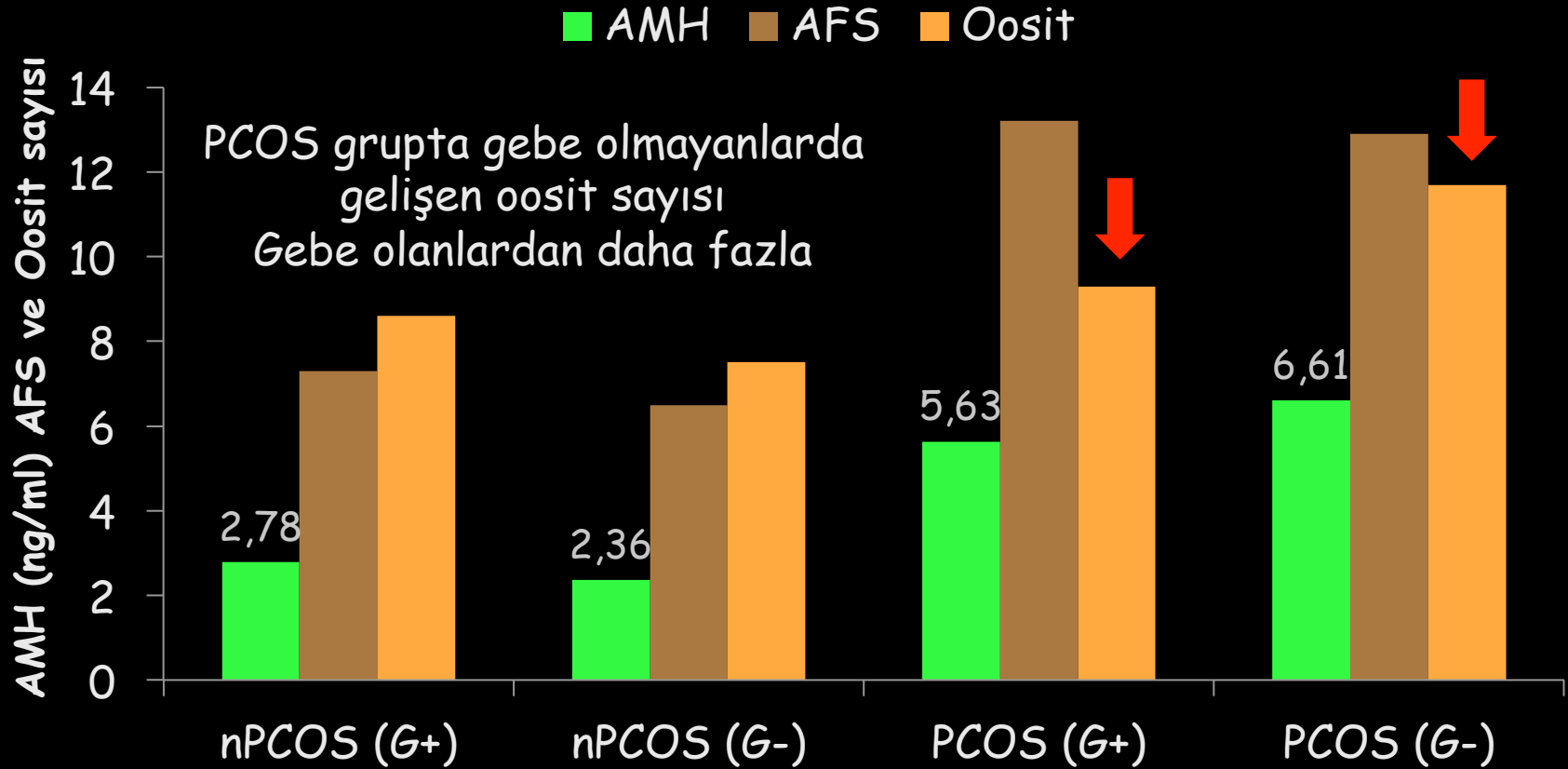
Ocal P, Sahmay S, Cetin M, Irez T et al. J Assist Reprod Genet. 28:1197, 2011

# PCOS'lu hastalarda AMH düzeyi ile IVF sonuçları ilişkisi

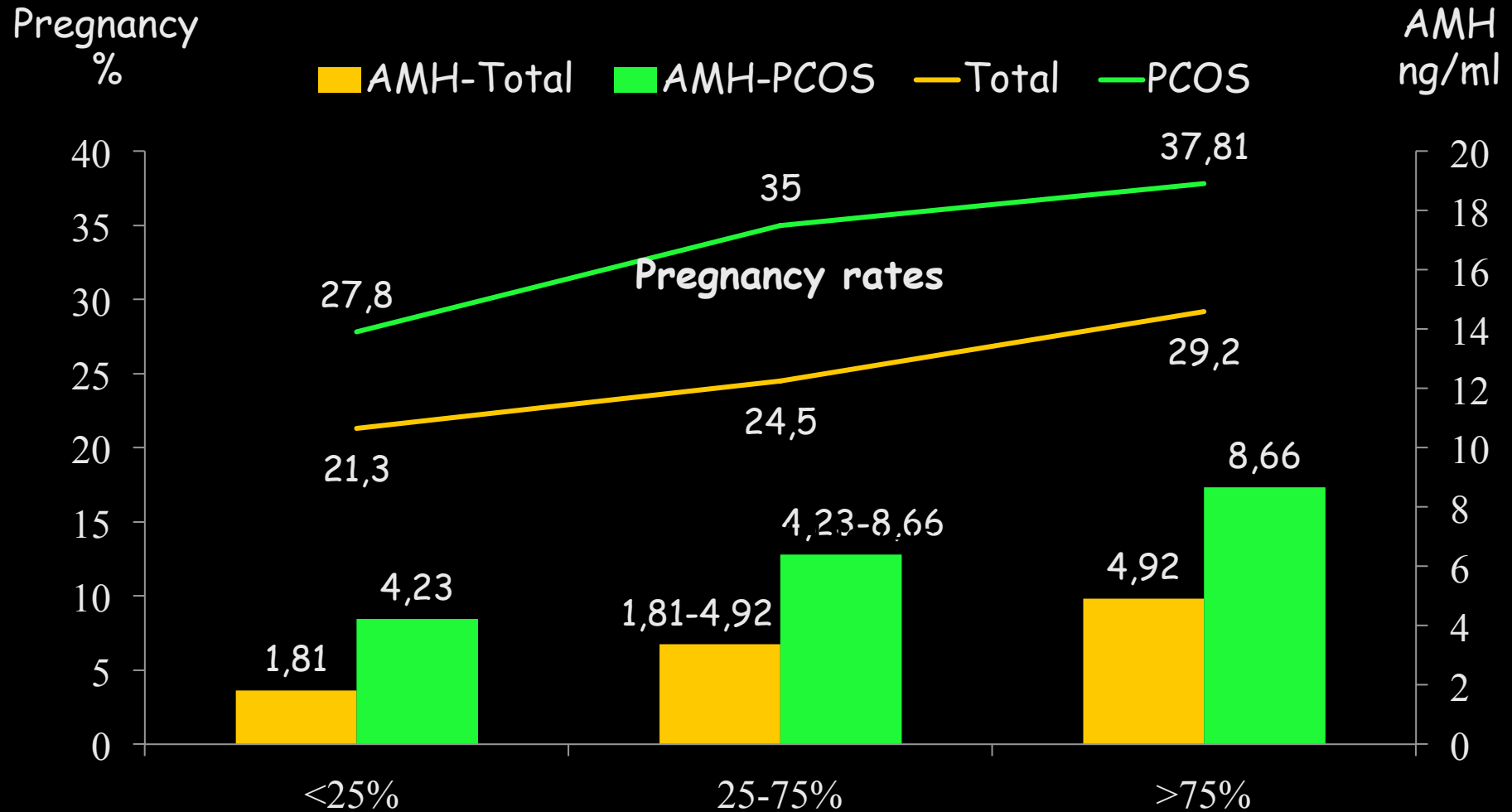


Sahmay S, Guralp O, Aydogan B, Cepni I, Oral E, Irez T: *Gynecol Endocrinol Online*, 2013, DOI: 10.3109/09513590.2013.769519

# AMH - AFS - Oosit sayısı PCOS ve nPCOS`da gebelik oranları



# Persantillere göre PCOS ve nonPCOS'da gebelik oranları



Sahmay S, Atakul N, Aydogan B, Aydın Y, İmamoğlu M, Seyisoğlu H.  
Acta Obstet Gynecol Scand 2013, 92:1369-74

# Haşimato-over rezervi AMH

Table 1. Comparison of the clinical and hormonal characteristics between HT patients and the control group.

|                                  | HT N: 32              | Control N: 49       | p       |
|----------------------------------|-----------------------|---------------------|---------|
| Age (years)                      | 34.93 ± 8.87          | 34.16 ± 4.74        | 0.611†  |
| BMI (kg/m <sup>2</sup> )         | 24.33 ± 3.12          | 23.57 ± 1.62        | 0.155†  |
| Length of menstrual cycle (days) | 30.21 ± 10.24         | 28.34 ± 2.08        | 0.262†  |
| Antral follicle count (n)        | 6.84 ± 3.81           | 6.08 ± 2.72         | 0.297†  |
| AMH (ng/mL)                      | 4.82 (1.47–7.38)      | 2.44 (1.63–3.29)    | 0.025*† |
| FSH (mIU/mL)                     | 7.16 ± 2.29           | 6.53 ± 2.55         | 0.257†  |
| LH (mIU/mL)                      | 6 ± 2.77              | 5.56 ± 1.92         | 0.301†  |
| E2 (pg/mL)                       | 50.42 (31.12–66.89)   | 44.18 (31.25–53)    | 0.867†  |
| PRL (ng/mL)                      | 15.67 (9.16–17.35)    | 17.47 (11.51–21)    | 0.112†  |
| TSH (mIU/mL)                     | 2.22 ± 1.63           | 1.84 ± 1.07         | 0.207†  |
| FT3 (pg/mL)                      | 2.84 ± 0.56           | 2.55 ± 0.59         | 0.033*† |
| FT4 (pg/mL)                      | 1.27 ± 0.32           | 1.22 ± 0.31         | 0.544†  |
| Anti-TPO (IU/mL)                 | 290.88 (90.64–421.17) | 24.13 (18.71–31.12) | 0.001*† |
| Anti-TG (IU/mL)                  | 330.51 (53.67–444.62) | 18.89 (11.29–29.74) | 0.001*† |

Continuous variables are presented as median (25th–75th percentile) or mean ± standard deviation. BMI: Body Mass Index; AMH: Anti-Müllerian Hormone; FSH: Follicle Stimulating Hormone; LH: Luteinizing Hormone; E2: Estradiol; PRL: Prolactin; TSH: Thyroid Stimulating Hormone; FT3: Free Thyroxine 3; FT4: Free Thyroxine 4; Anti-TPO: Anti-Thyroid Peroxidase; Anti-TG: Anti-Thyroglobulin.

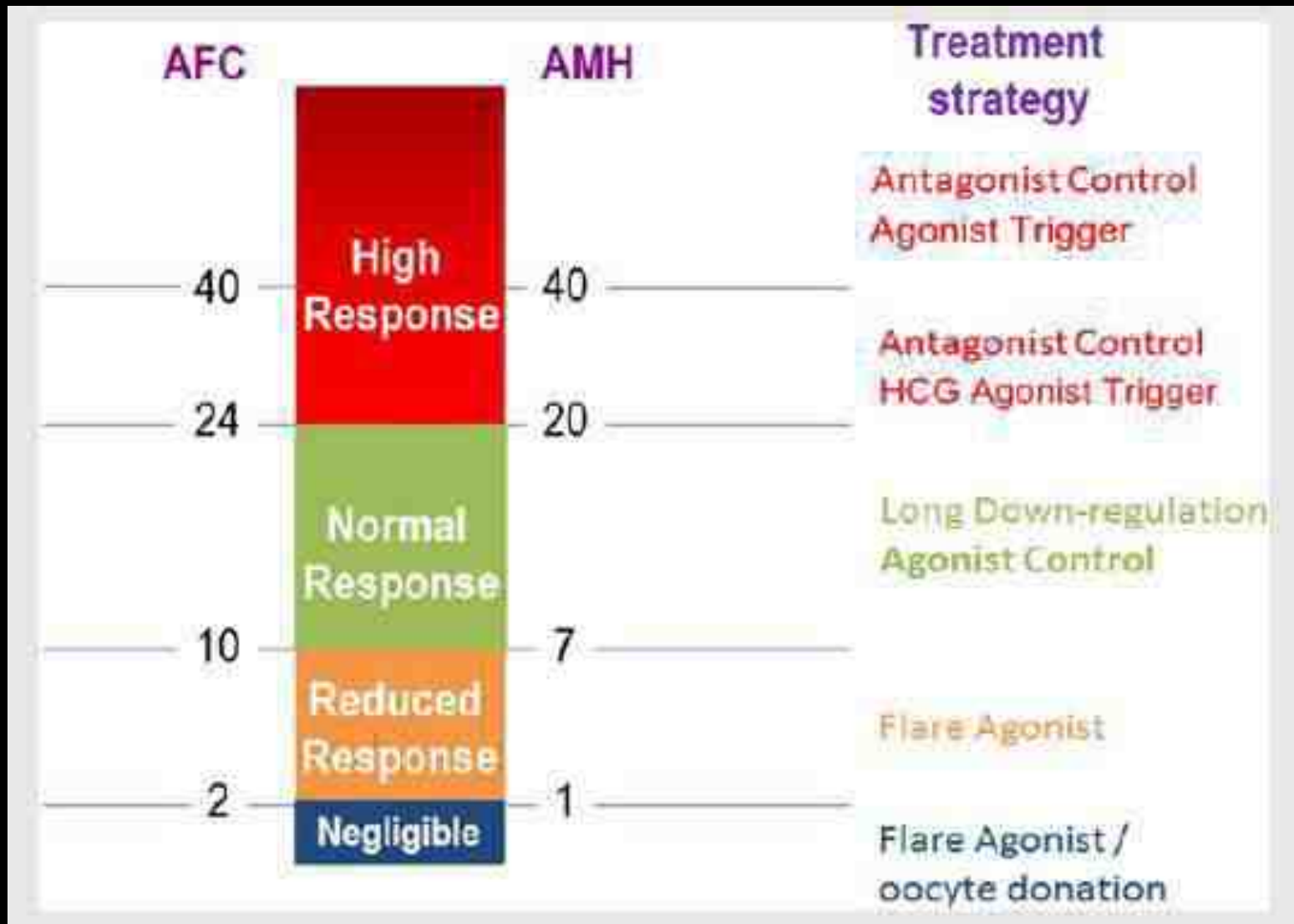
†Independent samples *t*-test (two-tailed).

‡Mann-Whitney *U*-test.

\**p* Value <0.05.

Tuten A, Hatipoglu E, Oncul M, Imamoglu M, Acikgoz AS, Yilmaz N, Ozcil MD, Kaya B, Misirlioglu AM, Sahmay S. *Gynecol Endocrinol.* 2014; 30:708-11. doi: 10.3109/09513590.2014.926324. Epub 2014 Jun 6.

# Over cevabı-AFS ve AMH



# Over cevabında yararlı belirteçler

| Characteristics for a good marker | Age<br>17 | AMH<br>16 | FSH<br>6 | AFC<br>10 |
|-----------------------------------|-----------|-----------|----------|-----------|
| Prediction of poor response       | +         | +++       | ++       | +++       |
| Prediction of hyper response      | +         | +++       | —        | ++        |
| Low inter-cycle variability       | +++       | ++        | —        | ++        |
| Low intra-cycle variability       | +++       | ++        | —        | ++        |
| Blinded to the operator           | +++       | +++       | +++      | —         |
| Applicable to all patients (a)    | +++       | +++       | +        | +         |
| Cheapness                         | +++       | —         | —        | —         |

# AMH normal deęerleri

| AMH ng/mL   | Klinik anlamı              |
|-------------|----------------------------|
| < 0.08      | Aşırı azalmış over rezervi |
| 0.08 - 0.16 | Azalmış over rezervi       |
| 0.16 - 1.5  | Azalmış fertilitite        |
| 1.5 - 4.0   | Optimal fertilitite        |
| > 4.0       | PKOS / OHSS riski          |

# Özet - 1

- Over rezervinin belirlenmesi rutin uygulamada gereksizdir.
- Over rezervinin belirlenmesinde öncelikle yaş ve siklus düzeni düşünülmelidir.
- Antral Folikül sayısı ve AMH en güvenilir yöntemlerdir.
- Hastanın tedavi endikasyonunda kesin ve tek bir belirleyici yoktur.
- Tüm yöntemler gebelik öngörüsünde yetersizdirler.
- Over rezervinin belirlenmesinde birden fazla ve basit yöntemlere öncelik verilmelidir.

## Özet - 2

- AMH düzeyi ile gebelik oranları arasında pozitif korelasyon vardır.
- Zayıf yanıt ve OHSS öngörülmesinde yararlıdır.
- AMH için tek ölçüm yeterlidir.
- Özellikle ek bir bulgu olmaksızın sadece çok düşük AMH değerlerinde de gebelik mümkündür.
- Klinik olarak düşük AMH değerlerinden ziyade yüksek değerler daha önem taşımaktadır.

İlim ve Sanat ilgi görmediği  
yerden göç eder. İBNİ SİNA

Ego=1/bilgi. EINSTEIN

Bir ülkede yalakalığın getirisi,  
dürüstlüğün getirisinden daha fazlaysa  
o ülke batar. MONTESQUIEU



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