



BỆNH VIỆN PHỤ SẢN TRUNG ƯƠNG
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**COMPARISON OF THE VALUE OF AMH, AFC
AND FSH FOR IDENTIFYING OVARIAN-
RESPONSE IN IN-VITRO FERTILIZATION
IN HAI PHONG HOSPITAL
OF OBSTETRICS AND GYNECOLOGY**

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INTRODUCTION

Ovarian response

Ovarian response	Oocytes retrieved
Poor	< 4 oocytes
Normal	5 - 15 oocytes
High	> 15 oocytes



INTRODUCTION


Ovarian reserve

- **Ovarian reserve refers to a woman's reproductive potential, reflected as the quantity and quality of the ovarian follicle pool at any given time.**



INTRODUCTION

Ovarian reserve makers

- **Basal follicle stimulating hormon**
 - **Antral follicle count**
 - **AMH**
- 



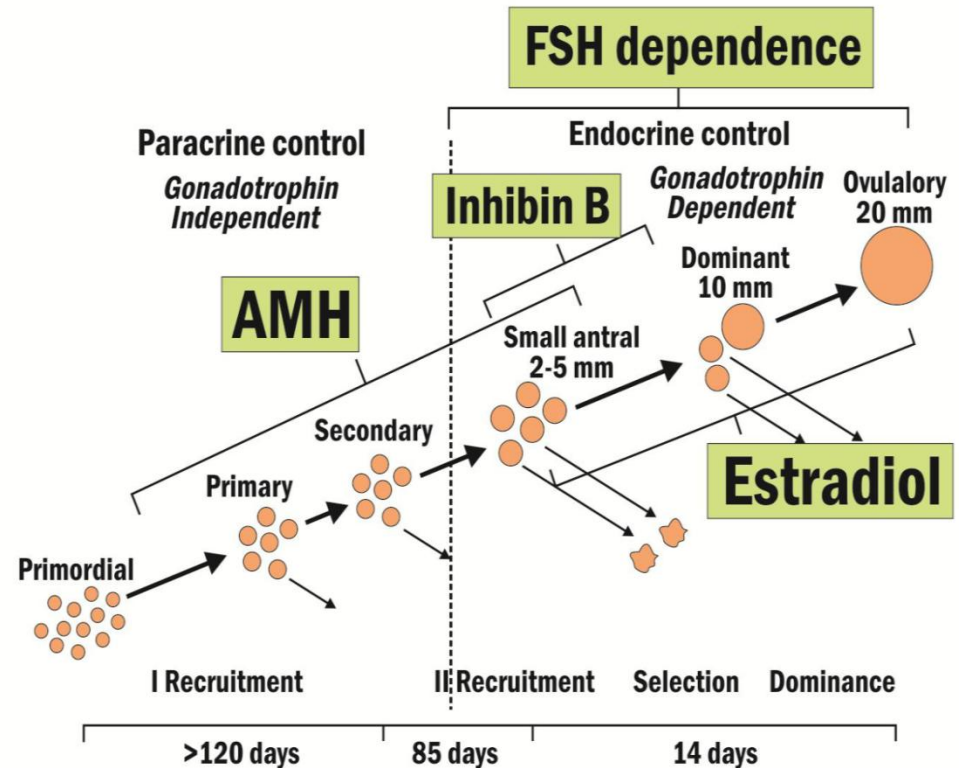
INTRODUCTION

- **Basal follicle stimulating hormon**
 - Measured on day 2-3 of the menstrual cycle
 - An increase in FSH levels occurs due to follicle depletion
- **AFC**
 - AFC are measured by transvaginal ultrasonography in the early follicular phase
 - Predicting both poor and hyper ovarian response

INTRODUCTION

- **AMH**

- AMH(anti mullerian hormone) is a glycoprotein hormone.
- AMH reflects the continued growth of small follicles






INTRODUCTION

- **An AMH test can be done at any time in the menstrual cycle**
- **AMH levels decline with age.**
- **AMH levels are not influenced by birth control pills or GnRH agonists**
- **Predicting both poor and hyper ovarian response**



Objectives

To compare the value of AMH, AFC and FSH for indentifying ovarian-response in in-vitro fertilization at Haiphong hospital of obstetrics and gynecology from 1/2017 to 1/2018





Patients & Methods

- **A prospective study was conducted 507 patients in Haiphong hospital of obstetrics and gynecology from 1/2017 to 1/2018.**
- **On cycle day 2, each person had AMH, AFC and FSH measured**



Results

Patients' characteristics

- Age

Age (years)	n	%
≤ 25	41	8,1
26 – 30	139	27,4
31 – 35	196	38,7
>35	131	25,8
Sum	507	100
Mean ± SD (Min – Max) 32.58 ± 5.03 (19 – 48)		



Results

- **Type of infertility**

Type of infertility	n	%
Primary	233	46
Secondary	274	54
Sum	507	100%



Results

- **Duration of infertility**

Duration of infertility (years)	n	%
<5	315	62.1
5 – 10	175	34.5
>10	17	3.4
Sum	507	100
Mean ± SD (Min – Max) 4,25 ± 3,09 (1 – 20)		



Results

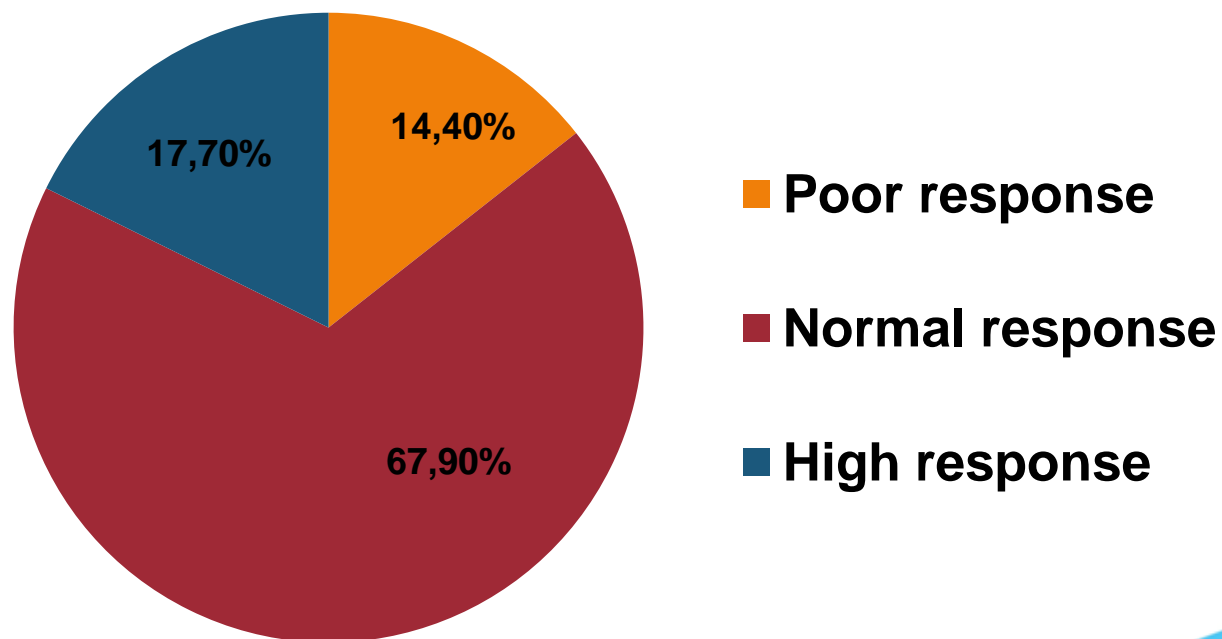
- Indication for IVF

Indication	n	%
Male factor	192	37.9
Tubor factor	112	22.1
Ovulation disorder	15	3
Both male and female factor	41	8.1
Endometriosis	29	5.7
Others	118	23.3
sum	507	100



Results

➤ Ovarian response





Results

➤ Correlations between markers and retrieved oocytes

Markers	R	P
AMH	0,7	< 0,01
AFC	0,6	< 0,01
FSH	- 0,26	< 0,01



Results

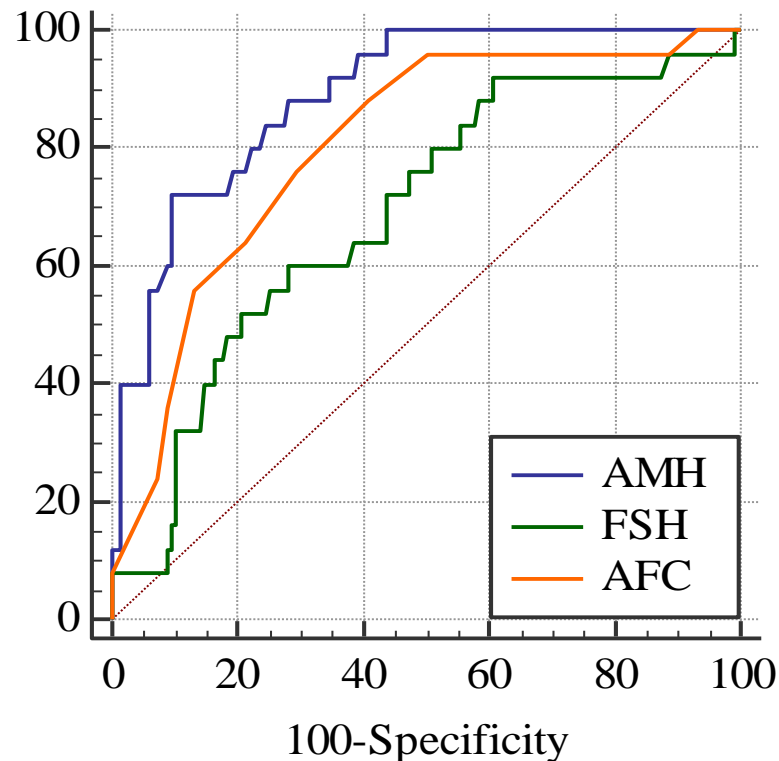
- **Comparison of the value of amh, afc and fsh for indentifying poor ovarian-response**

Markers	AUC (95%CI)	p
AMH	0.88 (0.84 – 0.92)	< 0,01
AFC	0.85 (0,8 -0,9)	
FSH	0.69 (0,62 – 0,76)	



Results

- **ROC curves for AMH, FSH, AFC for prediction of poor ovarian response**





Results

➤ **Performance of AMH, FSH and AFC values in predicting poor ovarian response**

Markers	Cut-off values	Sensitivity	Specificity
AMH	1,31 ng/ml	74%	86,9%
AFC	< 8 oocytes	74%	79,5%
FSH	7.07 IU/L	67,1%	68,7%



Results

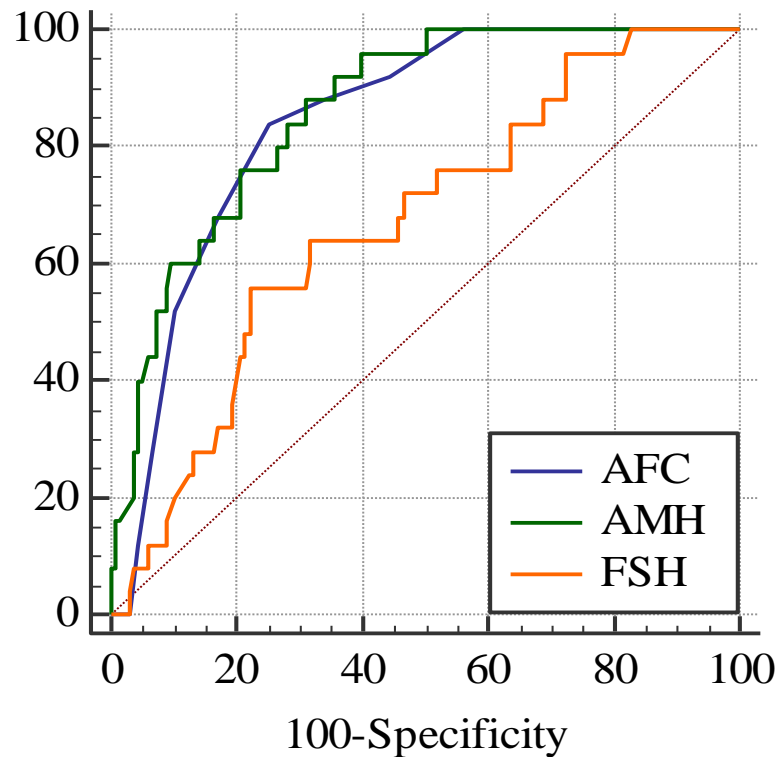
- **Comparison of the value of amh, afc and fsh for indentifying high ovarian-response**

Markers	AUC(95%CI)	P
AMH	0.85 (0.81 – 0.88)	< 0,01
AFC	0.83 (0,78 -0,87)	
FSH	0.64 (0,59–0,71)	



Results

- **ROC curves for AMH, FSH, AFC for prediction of high ovarian response**





Results

- **Performance of AMH, FSH and AFC values in predicting high ovarion response**

Makers	Cut-off values	Sensitivity	Specificity
AMH	3.31 ng/ml	85,6%	71,9%
AFC	> 12 oocytes	81,1%	64,3%
FSH	5,72 IU/L	52,2%	70,3%



Conclusions

- **AMH test has the best predictive value for predicting both poor and high ovarian response, followed by AFC and FSH.**
- **AMH \leq 1.31 ng/ml (Sen: 74%, Spec: 86.9%), AFC $<$ 8 oocytes(Sen 74% and Spec 79,5%), FSH \geq 7.07IU/L (Sen 67.1% and Spec: 68.7%) predicted poor-response.**
- **AMH \geq 3.31 ng/ml (Sen: 85.6%, Spec: 71.9%), AFC $>$ 12 oocytes (Sen 81.1% and Spec 64.3%), FSH \leq 5.72IU/L (Sen 52.2% and Spec: 70.3%) predicted high response**



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Thank you for your attention!

