

Original Article

Assessment of Responsible factors affecting Antral Follicles among Women in Known Populations Group

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ABSTRACT:

Background: Reproductive aging amongst females is driven by ovarian aging and articulated as a reduction in both the quantity and quality of primordial ovarian follicles. The chronological age range at which menopause occurs is suggestive that reproductive aging is variable amongst females, and indicates that age is not the single factor reflecting the females' reproductive potential. The present study was conducted with the aim to determine the responsible factors affecting antral follicles among women in known populations group.

Materials and methods: The present cross sectional study was conducted in the private hospital over a period of 7 months. Total 50 Females between 20- 50 years of age with regular menstrual bleeding were included in the study. Endocavitary probe was used to perform the ultrasound examination of the ovaries. The count of follicles began from the outer margin to the opposite side. Round / oval structures 2-10 mm in size were regarded as follicles. Student t test was used to compare the results. Probability value of less than 0.05 was considered as significant. **Results:** The present study enrolled 50 females between the age group of 20-50 years. The mean follicle count amongst obese subjects was 11.2+/-3.1. The mean follicle count amongst overweight subjects was 10.2+/-4.2. The mean follicle count amongst normal subjects was 13.87+/-9.22. Between 20-25 years of age, the mean antral follicle count was 14.6+/-4.2. Between 26-30 years of age, the mean antral follicle count was 14.4+/- 4.9. **Conclusion:** From the present study we can conclude that age is an important factor affecting the antral follicle count.

Key words: Endocrine markers; ovarian follicles; chronological age

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INTRODUCTION

Reproductive aging amongst females is driven by ovarian aging and articulated as a reduction in both the quantity and quality of primordial ovarian follicles and within.¹ Peak fertility is seen during the mid-20s, after which the fertility begins to decline until menopause^{2,3}. The chronological age range at which menopause occurs is suggestive that reproductive aging is variable amongst females, and indicates that age is not the single factor reflecting the females' reproductive potential.⁴ Initially the decline in follicle number was considered biphasic with a sudden decline of oocyte count at 37 years of age⁵, but subsequent surveys suggested that there is gradual loss of oocyte count over time.⁶ Various tests have been used to count ovarian

reserve, they are chiefly used in Infertility clinics. Endocrine markers like anti-Mullerian hormone, inhibin B, estrogen and follicle stimulating hormone, indirectly indicate the growing follicle count⁷, direct estimation of follicles can also be done using ultrasound.⁸ Females with trisomic pregnancy demonstrated early onset of menopause⁹ and that females after a Down syndrome birth present increased values of follicle stimulating hormone when compared with controls. The present study was conducted with the aim to determine the responsible factors affecting antral follicles among women in known populations group.

MATERIALS AND METHODS

The present cross sectional study was conducted in the private hospital over a period of 7 months. Total 50 Females between 20- 50 years of age with regular menstrual bleeding were included in the study. Subjects reporting with menstrual or hormonal abnormality, use of oral contraceptive pills, history of cystectomy or pregnant females were excluded from the study. All the subjects were informed about the study and a written consent was obtained from them in their vernacular language. Endocavitary probe was used to perform the ultrasound examination of the ovaries. The count of follicles began from the outer margin to the opposite side. Round / oval structures 2-10 mm in size were regarded as follicles. Two examiners not known to each other’s readings were used to perform the examination. All the data was arranged in a tabulated form and analyzed using SPSS software. Student t test was used to compare the results. Probability value of less than 0.05 was considered as significant.

RESULTS

The present study enrolled 50 females between the age group of 20-50 years.

Table 1 shows the variation in the antral follicle count. The mean follicle count amongst obese subjects was 11.2+/-3.1. The mean follicle count amongst overweight subjects was 10.2+/-4.2. The mean follicle count amongst normal subjects was 13.87+/-9.22. There was no significant variation between them as the p value was more than 0.05. The mean follicle count amongst subjects with infertility was 9.67+/-7.92. There was no significant variation in the antral follicle count per socioeconomic class. The mean follicle count amongst upper class and middle class females was 12.17+/-7.21 and 11.3+/-2.5 respectively.

Table 1: Variation in the antral follicle count

Variable		Mean values	P value
Age		33.4	
obesity	Normal	13.87+/-9.22	>0.05
	Obese	11.2+/-3.1	
	overweight	10.2+/-4.2	
Infertility	Present	9.67+/-7.92	>0.05
	Absent	11.43+/-8.22	
Socioeconomic class	Upper class	12.17+/-7.21	>0.05
	Middle class	11.3+/-2.5	
	Lower class	10.5+/-4.2	

Table 2: Antral follicle count descriptive values

Age (years)	Mean+/- SD	Minimum-Maximum
20-25	14.6+/-4.2	5-26
26-30	14.4+/- 4.9	4-31
31-35	11.2+/-3.1	3-30
36-40	10.3+/- 3.7	3-30
41-45	7.4+/- 3.8	3-27
46-50	10.7+/-5.2	2-18

DISCUSSION

Tests for Ovarian reserve have critical role in the treatment of assisted reproduction techniques related to the prediction of poor¹⁰ or increased ovarian response¹¹, countering the controlled ovarian hyperstimulation decorum^{12,13} and dosing of gonadotropin^{14,15} to obtain the optimal frequency of oocyte. They have been also used in the definition of polycystic ovary syndrome, but the ideal level and the type of marker that should be considered are not completely clear.^{16,17} The expected age of natural menopause can be predicted using ovarian reserve tests, even in the presence of a wide interval of confidence.^{18,19} Nowadays, screening for ovarian reserve amongst general population has been recently contraindicated under the ethical issues to permit planning of reproductive life amongst women.²⁰ According to the present study, the mean follicle count amongst obese subjects was 11.2+/-3.1. The mean follicle count amongst overweight subjects was 10.2+/-4.2. The mean follicle count amongst normal subjects was 13.87+/-9.22. There was no significant variation between them as the p value was more than 0.05. The mean follicle count amongst subjects with infertility was 9.67+/-7.92. There was no significant variation in the antral follicle count per socioeconomic class. The mean follicle count amongst upper class and middle class females was 12.17+/-7.21 and 11.3+/-2.5 respectively. Various hormonal and ultrasonic markers for ovarian reserve have been studied to recognize females with a poor retort to ovulation induction during anti retroviral therapy. The more recently known markers like antral follicle count have identified to be more useful than markers previously studies like early levels of follicular stimulating hormone and levels of follicular phase inhibin B.²¹ Serum AMH levels indirectly indicate the size of the primordial follicle pool present in ovary and have shown to have limited cycle variation both intra and inter cycle period. The ultrasonic valuation of antral follicle count during the early follicular period directly relates with ovarian reserve²² and its decline can be sign of ovarian aging. According to our study, between 20-25 years of age, the mean antral follicle count was 14.6+/-4.2. Between 26-30 years of age, the mean antral follicle count was 14.4+/- 4.9. Between 31-35 years of age, the mean antral follicle count was 11.2+/-3.1. Between 36-40 years of age, the mean antral follicle count was 10.3+/- 3.7. Between 41-45 years of age, the mean antral follicle count was 7.4+/- 3.8. Between 46-50 years of

age, the mean antral follicle count was 10.7+/-5.2. The drawback associated with our present study small sample size and the present study studied age group variation in antral follicle count not variation at a particular age.

CONCLUSION

From the present study we can conclude that age is an important factor affecting the antral follicle count. There is a gradual decline in the count of antral follicles amongst females with advancing age. With age the chances of chromosomal abnormality amongst foetus also increase.

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