Journal of Advanced Medical and Dental Sciences Research

@Society of Scientific Research and Studies

Journal home page: www.jamdsr.com doi: 10.21276/jamdsr

(e) ISSN Online: 2321-9599; (p) ISSN Print: 2348-6805 SJIF (Impact factor) 2017= 6.261; Index Copernicus value 2016 = 76.77

Original Article

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

Jayanarayan Senapati[1], Asmita Patil[2], Rajashree Senapati[3], Shrikant Adsul[4]

[1]Associate Professor, [2,4]Assistant Professor, OBGY Dept ,Rajiv Gandhi Medical College, CSMH Kalawa Thane, [3]Consultant Obstetrician and Gynaecologist , Bhiwandi,

***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

Received: 20 January 2018 Revised: 14 February 2018 Accepted: 18 February 2018

Corresponding Author: Dr. Asmita Patil, Assistant Professor, OBGY Dept ,Rajiv Gandhi Medical College, CSMH Kalawa Thane, India.

This article may be cited as: Senapati J, Patil A, Senapati R, Adsul S. Assessment of Responsible factors affecting Antral Follicles among Women in Known Populations Group. J Adv Med Dent Scie Res 2018;6(4):84-86.

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 untilmenopause[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 age[5], 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 count[7], direct estimation of follicles can also be done using ultrasound.[8] Females with trisomic pregnancy demonstrated early onset of menopause[9] 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 poor[10] or increased ovarian response[11], 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 reserve[22]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.

REFRENCES

1. te Velde ER, Scheffer GJ, Dorland M, Broekmans FJ, Fauser BC. Developmental and endocrine aspects of normal ovarian aging. Mol Cell Endocrinol 1998;145:67–73.
2. Menken J, Trussell J, Larsen U. Age and infertility. Science 1986; 233:1389–1394.
3. van Noord-Zaadstra BM, Looman CW, Alsbach H, Habbema JD, te Velde ER, Karbaat J. Delaying childbearing: effect of age on fecundity and outcome of pregnancy. BMJ 1991;302:1361–1365.
4. El-Toukhy T, Khalaf Y, Hart R, Taylor A, Braude P. Young age does not protect against the adverse effects of reduced ovarian reserve—an eight year study. Hum Reprod 2002;17:1519–1524.
5. Faddy MJ, Gosden RG, Gougeon A, Richardson SJ, Nelson JF. Accelerated disappearance of ovarian follicles in mid-life: implications for forecasting menopause. Hum Reprod 1992;7:1342–1346.
6. Hansen KR, Knowlton NS, Thyer AC, Charleston JS, Soules MR, Klein NA. A new model of reproductive aging: the decline in ovarian non-growing follicle number from birth to menopause. Hum Reprod 2008;23: 699–708.
7. Broekmans FJ, de Ziegler D, Howles CM, Gougeon A, Trew G, Olivennes F. The antral follicle count: practical recommendations for better standardization. Fertil Steril 2010;94:1044–1051.
8. Hendriks DJ, Mol BW, Bancsi LF, Te Velde ER, Broekmans FJ. Antral follicle count in the prediction of poor ovarian response and pregnancy after in vitro fertilization: a meta-analysis and comparison with basal follicle-stimulating hormone level. Fertil Steril 2005;83:291–301.
9. Kline J, Kinney A, Levin B, Warburton D. Trisomic pregnancy and earlier age at menopause. Am J Hum Genet 2000;67:395–404.
10. Broer SL, van Disseldorp J, Broeze KA, et al. Added value of ovarian reserve testing on patient characteristics in the prediction of ovarian response and ongoing pregnancy: an individual patient data approach. Hum Reprod Update 2013;19:26–36.
11. Broer SL, Dolleman M, van Disseldorp J, et al. Prediction of an excessive response in in vitro fertilization from patient characteristics and ovarian reserve tests and comparison in subgroups: an individual patient data metaanalysis. Fertil Steril 2013;100:420–9 e7.
12. Nelson SM, Yates RW, Lyall H, et al. Anti-Mullerian hormone-based approach to controlled ovarian stimulation for assisted conception. Hum Reprod 2009;24:867–75.
13. Yates AP, Rustamov O, Roberts SA, et al. Anti-Mullerian hormone-tailored stimulation protocols improve outcomes whilst reducing adverse effects and costs of IVF. Hum Reprod 2011;26:2353–62.
14. La Marca A, Grisendi V, Giulini S, et al. Individualization of the FSH starting dose in IVF/ICSI cycles using the antral follicle count. J Ovarian Res 2013;6:11.
15. La Marca A, Papaleo E, Grisendi V, Argento C, Giulini S, Volpe A. Development of a nomogram based on markers of ovarian reserve for the individualisation of the follicle-stimulating hormone starting dose in in vitro fertilisation cycles. BJOG 2012;119:1171–9.
16. Dewailly D, Lujan ME, Carmina E, et al. Definition and significance of polycystic ovarian morphology: a task force report from the Androgen Excess and Polycystic Ovary Syndrome Society. Hum Reprod Update 2014;20:334–52.
17. Iliodromiti S, Kelsey TW, Anderson RA, Nelson SM. Can anti-Mullerian hormone predict the diagnosis of polycystic ovary syndrome? A systematic review and meta-analysis of extracted data. J Clin Endocrinol Metab 2013;98:3332–40.
18. Broer SL, Eijkemans MJ, Scheffer GJ, et al. Anti-Mullerian hormone predicts menopause: a long-term follow-up study in normoovulatory women. J Clin Endocrinol Metab 2011;96:2532–9.
19. Wellons MF, Bates GW, Schreiner PJ, Siscovick DS, Sternfeld B, Lewis CE. Antral follicle count predicts natural menopause in a population-based sample: the Coronary Artery Risk Development in Young Adults Women's Study. Menopause 2013;20:825–30.
20. Tremellen K, Savulescu J. Ovarian reserve screening: a scientific and ethical analysis. Hum Reprod 2014;29:2606–14.
21. Toner JP, Philput CB, Jones GS, Muasher SJ. Basal follicle-stimulating hormone level is a better predictor of in vitro fertilization performance than age. Fertil Steril 1991;55:784–791.
22. Frattarelli JL, Lauria-Costab DF, Miller BT, Bergh PA, Scott RT. Basal antral follicle number and mean ovarian diameter predict cycle cancellation and ovarian responsiveness in assisted reproductive technology cycles. Fertil Steril 2000;74:512–517.

Source of support: Nil **Conflict of interest:** None declared