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Research Article

**STUDY TO DETERMINE THEIR REPRODUCTIVE AND
HORMONAL CHANGES DURING MENOPAUSAL PERIOD**¹Dr Fatima Akram, ²Dr. Mahnoor Arshad, ³Dr Shafaq Naseer¹Holy Family Hospital Rawalpindi²Ganga Ram Hospital Lahore³Holy Family Hospital, Rwp

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Abstract:

When the birth period is completed in the females, we observe the lessening of number of chromosomes containing partial somatic cells in the female's reproductive organ. Prior to birth, half of the follicle puddle is misplaced. Pending the females arrives at the 40 years of age, atresia sluggish, at that time the number of follicles stayed arrives at a dangerous doorstep. Again, atresia becomes fast at this stage again and female developed through the reproductive aging until when no eggs in the ovary of female present more. This occurs at the average age of 51 years. We notice the less formation of B inhibin and almost no secretion of follicle stimulating hormone (FSH) when only smaller numbers of ovaries are present in the female body. A large number of hormonal discharges occur on the basis of reaction towards follicles in every periodic cycle. Sometimes females face unsuitable production of follicles and sometimes normal production. These two conditions alternate simultaneously. A study named Study of Women across the Nation (SWAN) was organized to recognize the changes in the hormonal discharge of the females. This recognition was made by examining the urine of the female every day. It was observed that females of the larger ages and larger weight bearing showed less discharge of hormones. Less production of estradiol and more release of FSH was seen in the older females at the time stoppage of reproductive cycle. At the time of start of menopausal evolution less production of luteinizing hormone was also observed. Central nervous system of the female fails to react normally towards the secretion of various hormone so imbalance in the production of hormones results. Throughout the evolution we noticed the changes in every reproductive cycle, not only the ovary. Changes in the hormonal secretion of reproductive cycle indicate the perimenopause.

Place and duration: In the pathology and obstetric department of Ganga Ram Hospital Lahore for one-year duration from March 2019 to February 2020.

Keywords: An ovulation; FSH; Inhibin; Menopausal transition; ovarian aging

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INTRODUCTION:

There is a wide variation in the observations of National institute of Health (NIH) and other institutes like National Institute on Aging (NIA) and other agencies and institutes of NIH. This study is not planned as a declaration of Federal instructions as this whole publication was discussed in NIA and OMAR. Aid was obtained from NIA and NIH for the periodical of this observation. Grant NOS helped the Observation of Women Health across the Nation (SWAN).

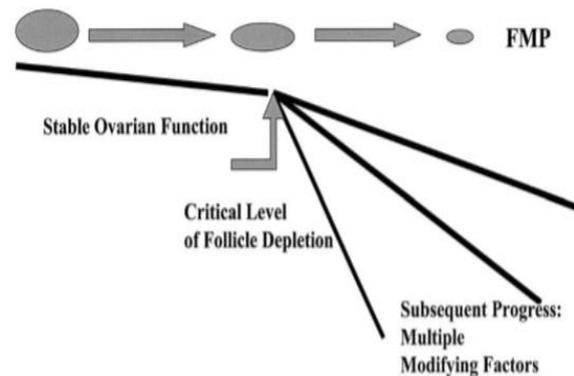
Evolution in the menopause can be observed by variation in the reproductive cycle, omitted periodic cycle, etc. the variation in the periodic cycle was seen almost at the age of 48 years¹⁻². The average age for FMP was 51.5 years. At the time of menopausal evolution changes in the secretion of hormones and adverse indications were seen. Menopause is basically related with the absence of contribution of follicles of ovaries. After the stoppage of menopause, most of the females are not affected by attrition of eggs³. But entire stoppage of hormonal secretion results subsequent to the failure of ovarian wall after the occurrence of menopause. Estrogen can be formulated by Granulosa which are present in the ovary⁴. They constrict neighboring cells to start the production of androgen⁵. When follicles are absent both androgen and estrogen are lost from the follicles. This observation is supported by immune histochemistry and related examinations⁶. Opposite to these results, it has been found by examining the levels of androgen in plasma that females who went under oophorectomy have less amount of testosterone evolving in contrast to females who don't have⁷.

REVIEW OF LITERATURE

The reason of evolving androgen is not always ovaries in the females after menopausal evolution. More observations are required to analyze whether the ovary secretes androgen or not. At the time of reproduction cycle, an ovarian coffer diminishes. As a result, the number of follicles decreases. (fig 1)

Figure 1:

An operational sculpts of aging of ovaries throughout the menopausal evolution. The presence of ovaries decreases the entire existence and reaches to a serious reduction at the beginning of menopause. During this period, the omitted periodic cycle is observed by the female.



As a result, the amount of FSH enhances. Sherman and Korenman define the endocrine characters of heart before the occurrence of menopause in 1975. The study also observes the relative reduction of inhibin. After got all observations confirmed the enhancement of the evolving FSH in plasma throughout the menopausal evolution. By the rise in age reduction of the functioning of ovaries as also seen.

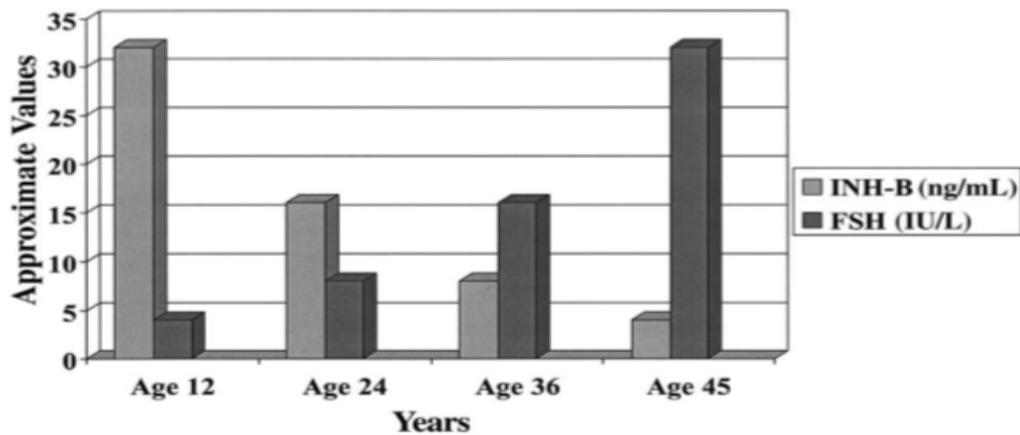
By using the features of the periodic cycle, female's development through the evolution is best estimated right now. This is helpful in classifying the females in epidemiology for further analysis. Female is known to gain the initial evolution of menopause if she observed the wide variation in the periodic cycle or omitting in the menstrual cycle. The variation in periodic cycle which lasts for more than a week indicates the menopause. When these indications persist for more than 3 months it is now called late evolution of menopause. Female is said to be postmenopausal when she did not experience menstrual cycle for consecutive one year of time. It has been observed in the recent examinations that the average length of menopausal evolution in female is greater than 45 days are sensitive forerunner of an imminent FMP.

MATERIAL AND METHODS:

Reduction in the secretion of inhibin causes the enhancement of FSH which is the characteristic of menopausal evolution. Inhibin is protein which is not related to steroid. It is present in liquid portion of the follicles and is supposed to be produced during the development of follicles. Females face the reduction in the inhibin and rise in the FSH on its entire life but after the octene of menopause it becomes understandable.

Figure 2

The inhibin supposition. As the number of ovaries reduces, Inhibin also reduced

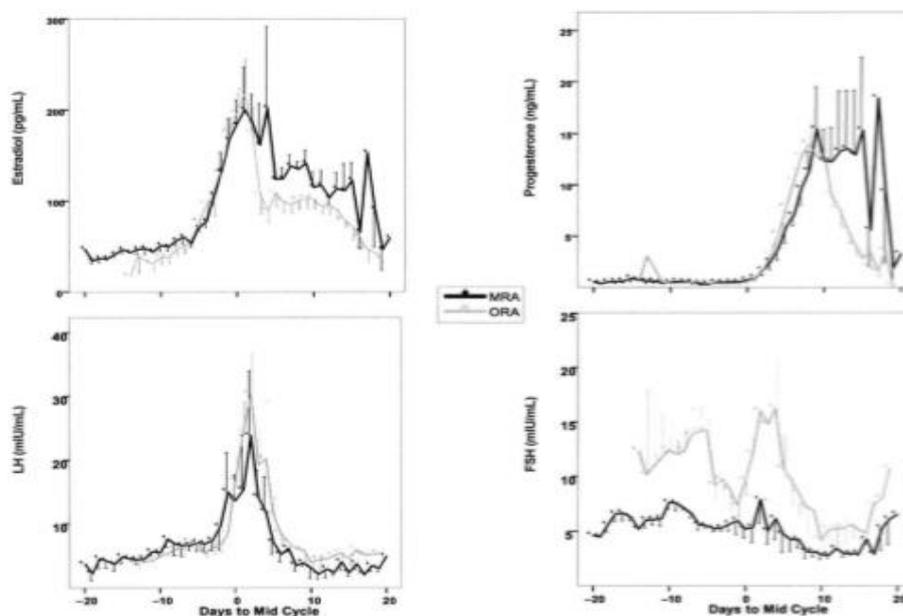


We can fully describe the knowledgeable midreproductive menstrual cycle by comparing the reproductive cycles of older females and the synchronize guideline of FSH. Less amounts of estradiol and progesterone and high amounts of FSH was seen at the initial stages of follicles. This causes the development in follicles. Rise in estradiol by the presence of inhibin B is seen in the middle stage of follicles. It indicates shimmering the assortment and development of little antral follicles. A follicle that directs is chosen at this time. It negatively acts against inhibin B and estradiol which causes the less secretion of FSH. At the last stage of follicles, inhibin is produced by the follicles and the level of estradiol is at its peak at

this stage. The inhibin A is at its maximum concentration at the middle stage of the reproductive cycle. LH is excreted by the estradiol that sends signals towards the brain that causes the release of eggs from the ovaries. Inhibin A at its peak during this phase. By the negative reaction of high levels of estradiol, progesterone and inhibin A, less amount of luteal FSH is excreted. By the occurrence of luteolysis, amount of inhibin A is reduced which causes the secretion of FSH. FSH is then found to enhance rapidly to initiate the subsequent legion of follicles before birth of the child. In the figure 3 the association between FSH, LH, progesterone and estradiol are expressed.

Figure 3

Pattern of estradiol, LH, FSH and progesterone in the 8 females of average periodic age and 14 older females having the greater periodic age.



Enhancement in the FSH is the main reason of shortening of reproductive cycles. It also causes the greater formation of estradiol and estrogen hormones. Ovary is still competent of reacting against tropic hormone contribution. It causes the more production of FSH with the shortage of inhibin B secretion. As a result, the reaction of follicles is overrun. We observe two puddles of follicles. One pool is that which is accessible instantly for the development inside the recent conscript able pool, and the other are not responsive towards gonadotrophin indications. When enough follicles are present within the preserve collection, the developing collections refill it roughly after two to three months. The developing collection of follicles is not able to refill itself when there is shortage of follicles requirement.

The reproductive cycle becomes more unstable when there is very low level of reactive follicles remained. Extend amenorrhea is present at this stage of evolution and there is close association between post menopause and hormonal milieu. Progesterone is the most significant hormone which is found to be not present subsequent to FMP. After the initial year of FMP, confirmation of alternating estrogen secretion is there, but still reproductive cycle does not start again.

Females who are crossing the stoppage of periodic cycle, Study of Women's Health across the Nation (SWAN) are the helpful study, which is based on population and longitudinal study. Moreover, it doesn't have the issue of ethnicity. It covers many ethics. In this study, 5 groups of females from different ethics were examined in facet. The longitudinal features of the females of postmenopausal were seen in the examination. Daily Hormone Study (DHS) is also the part of the SWAN study. In this study about 800 females were examined by taking the examination of their urine every day in the early morning. This practice was carried out for a whole reproductive period. This was repeated one time in a year. From the urine FSH, LH estrogen and progesterone were observed. In this study the variation in the production of hormones with the change in age, size of body and reproductive cycles were seen. on the basis of manifestation these cycles were divided into three classes. It has been seen in some cases that estradiol and LH enhanced in their normal pattern but progesterone does not rise in amount. This indicates the ability of ovary to secrete enough amount of estrogen. In this case hypothalamus reacts maximum towards LH but the formation of corpus luteum diminished. In second case, estrogen is found to be enhanced but reduction in LH as seen. This indicates the no reaction towards CNS. Third condition is elevated to the prototype of hormones

after menopausal condition. In this case there is rise in the level of LH and FSH but no rise in the amount of estrogen. These variations are beneficial to give the depiction of evolution that can be functional on the females separately.

RESULTS AND DISCUSSIONS:

Most of the mass of the ovaries is made up of follicles. So, we observe the shortening of ovaries when the numbers of follicles in the ovary diminishes when females face the menopausal evolution. At the age of 22-42 most of the reduction in follicles has been seen. It has been estimated from the recent study that each year about 5% reduction in the follicles has been observed. After the age of 35 this reduction reached up to 12%. It is evident from a study that in younger and older females the follicle development and destruction is same. However, it has been seen that in the females of 40 years and younger females there is a contradiction about the size of follicles. The time required for the maturation of the ovaries is less in the older females as compared to the younger ones⁸. It has been noticed that initially the development of ovaries is fast and they react commonly towards the greater amounts of FSH. In older females initially larger ovaries appeared but with the passage of time these are found to be shirked⁹. So smaller follicles are seen at the time of ovulation¹⁰.

In the older females initially the development of follicles starts earlier, prior to the start of periodic cycle. But this becomes smaller at later stages in older females¹¹. So, in older females there is relatively delicate mutilation of the subsequent phases of follicles development. This smaller size of follicles indicates that older females have reduced power of development¹²⁻¹³. Menopausal transition contains a significant character which is stoppage of standard criticism of hypothalamus¹⁴. In the females of more than 40 years of age who have nonfunctional secretion of blood from uterine, LH does not react towards estradiol confront. This was examined by Van Look and associated in 1970. Currently, information from SWAN indicated the same consequences¹⁵. It has been seen that the common female who is physically fit observe the anovulatory cycles throughout the menopausal evolution which does not have the predictable optimistic feedback reaction to estradiol.

SUMMARY:

Less is known about the hormonal forerunners of stoppage of periodic cycle. Less secretion of FSH and inhibin produced as a consequence of progressive reduction of follicles of ovaries. Different outline of hormone causes as a consequence of rise in FSH which depends on the

accessibility of follicles of ovaries and their amount of receptiveness. The release of eggs forms the follicles diminished when the number of follicles shortened extremely. To obtain the preferred results it is possible to influence the ductless system in the older females. With the progression in the information of the menopausal evolution it is evident that in the future there is not just ovary remained from the further examination. Brain also varied with the passage of time so it is also an important area of study. In some females the purpose of the ductless glands to lengthen the reproductive cycle and fruitfulness latent.

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