

Menopausal Symptomatology and Hormonal Correlation

Kobchitt Limpaphayom MD,
Nimit Taechakraichana MD,
Smai Leepipatpaiboon MD.

*Department of Obstetrics & Gynaecology,
Chulalongkorn Hospital,
Bangkok 10330, Thailand*

Abstract : *To assess the correlation between climacteric symptoms and objective measurement of hormonal changes in women suffering from natural and surgical menopause, we conducted measurement of serum concentration of follicle stimulating hormone (FSH), luteinizing hormone (LH), and estradiol (E_2) by radioimmunoassay on 48 Thai women attending the menopausal clinic at the Department of Obstetrics and Gynaecology, Chulalongkorn Hospital. When comparing the hormonal levels with modified estrogen-deficiency-symptom scoring system, using correlation and regression analysis, the results showed that there was no statistical correlation between hormonal levels (neither FSH, LH nor E_2) with total symptomatological scores. However, when comparing each hormonal profile with detailed a symptom scoring system, the analysis revealed that there was positive correlation between FSH and sexual symptom scores such as less sex drive, less sex feeling, dry vagina and dyspareunia ($r = 0.392$). (Thai J obstet Gynaecol 1993;4:129-133.)*

Key words : menopause, symptomatology, hormonal correlation

Women are the largest consumers of the health care system. As our population ages, more women are in their postmenopausal years. Entering this period, some women develop the so-called "Climacteric Syndromes" that seem to be a less serious phenomenon in Asian people than in other parts of the world.⁽¹⁾ However, climacteric syndromes have always been subjective symptoms, only a few studies have evaluated this syndrome in an objective way. On the other

hand, there are a lot of climacteric-like symptoms that can be found in women not entering the menopausal period. To assess the correlation between climacteric symptoms and objective measurement of hormonal changes in women suffering from this syndrome, we measured the serum follicle stimulating hormone (FSH), luteinizing hormone (LH) and estradiol (E_2) on patients attending our menopausal clinic.

Materials and Methods

The study included 48 women who attended the menopausal clinic, Department of Obstetrics and Gynaecology, Chulalongkorn University Hospital, Bangkok, Thailand, from March to July, 1992 mainly because of vasomotor symptoms, such as hot flushes and sweats. Their mean age was 49.3 (SD=4.0, ranged 40-59) years with amenorrhoeic duration of more than 12 months in 18 cases, more than 6 months in 20 cases, less than 6 months in 17 cases, unknown menstrual history in one case and 10 cases still having menstruation. These women were not on other hormonal replacement therapy, did not have any endocrine disorders nor receiving any steroid hormonal treatment. They had no chronic illnesses such as diabetes mellitus, chronic renal diseases or received regular medication or investigations with radioisotope/radiocontrast medium within one week. All of the women had spontaneous cessation of menses, except three, who had surgical menopause. None of the women smoked or drank. An interview was undertaken on all the women, including demographic data, menstrual history, medical history and especially perimenopausal/postmenopausal complaints using modified estrogen-deficiency scoring system (Table 1)⁽²⁾. In addition, physical and pelvic examinations were performed and 20 ml of blood was obtained for the determinations of FSH, LH and estradiol radioimmunoassay. Then, the hormo-

nal levels and modified estrogen-deficiency scoring system were compared, using correlation and regression analysis and χ^2 -test.

Table 1 Modified estrogen-deficiency-symptom scoring system⁽²⁾

Symtoms	Date/Score	Date/Score
1 Hot flushes		
2 Headaches		
3 Irritability		
4 Depression		
5 Unloved feelings		
6 Anxious feelings		
7 Anxious sleeplessness		
8 Unusual tiredness		
9 Bachache		
10 Joint pains		
11 Muscle pains		
12 New facial hair		
13 Unusual dry skin		
14 Less sex drive		
15 Less sexual feelings		
16 Dry vagina		
17 Dyspareunia		
18 Dysuria		
19 Frequency		
20 Incontinence		

Total score

0 = Absence, 1 = Mild, 2 = Moderate,
3 = Severe

Results

When comparing FSH, LH, E₂ and each classified action of the modified estrogen-deficiency scoring system, the results are presented in Table 2.

Table 2 Correlation analysis

Correlation	Age	E ₂	FSH	LH
E ₂	-.3451 *			
FSH	.3822 *	-.3682 *		
LH	.3830 *	-.2267	.8387 **	
ACT 1-8	-.2237	.1214	-.2331	-.2323
ACT 9-11	-.0161	.0814	-.0872	-.0172
ACT 12-13	.1076	.0295	.1837	.2769
ACT 14-17	.0632	-.1363	.3972 *	.1215
ACT 18-20	.0689	.1757	.0978	-.0062
TOTAL SCORES (ACT 1-20)	-.1386	.0938	-.1235	-.1604

* p = .01, ** p = .001

From the correlation analysis, it shows that age has a statistically significant negative correlation with serum E₂ and positive correlation with FSH and LH. Estradiol has statistically significant negative correlation with FSH, and FSH has statistically significant positive correlation with LH and actions 14-17.

Discussion

This study demonstrates that with increasing age, estradiol has a tendency to decline. On the other hand, FSH and LH have a tendency to increase which may be explained by E₂ from a group of 10 women who are still menstruating and have climacteric symptoms. This is because after 35 years of age, the human ovary begins to decrease in weight and size and contains fewer oocytes, follicular structures and has more atretic and degenerating follicles. This loss of

oocytes and follicles ultimately results in a gradual diminution of estrogen and inhibin⁽³⁾, which causes the reduction of estradiol and increment of FSH level.

Considering the correlation among E₂, FSH and LH, the results showed that estradiol had statistically significant negative correlation only with FSH (Fig. 1), and FSH had positively a very close correlation with LH (Fig. 2). From the results above, we suggest that, women who are suspected of entering the climacteric symptoms and require hormonal investigations to establish the diagnosis, may be checked only for E₂ and FSH level to lessen the high cost of hormonal assay for LH due to its close correlation to FSH.

When comparing the hormonal levels (FSH, LH and E₂) with modified estrogen-deficiency scoring system, it showed that there was no statistical correlation between the hor-

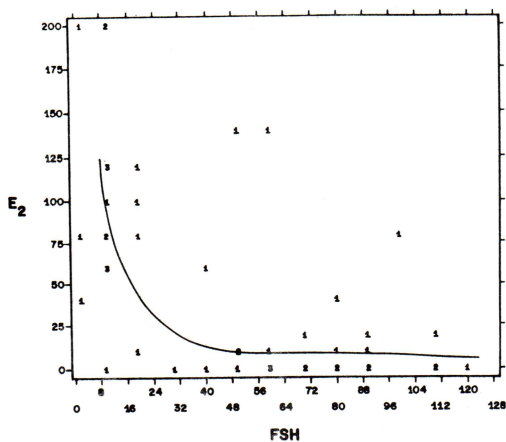


Fig. 1 Correlation between E_2 and FSH

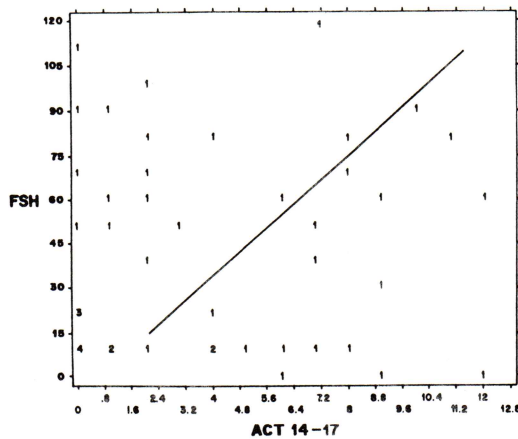


Fig. 3 Correlation between LH and FSH

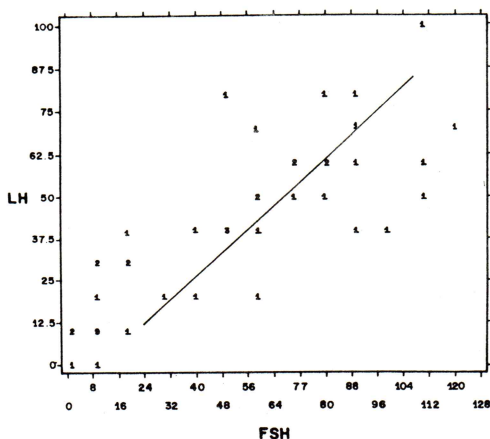


Fig. 2 Correlation between FSH and sexual feeling

monal levels and total symptomatological scores. This may be extrapolated that one cannot use the presence or absence of climacteric symptoms to indicate the need or no need for hormonal replacement therapy (HRT). For example, women with low symptomatological scores might have significant hormonal change that requires HRT to prevent bone loss. However, when considering each ac-

tion scoring system as classified above, we found that FSH has statistically significant correlation with actions 14-17 (Fig. 3) which were sexual symptoms, such as less sex drive, less sex feelings, dry vagina and dyspareunia. This may be explained by the fact that the recruited subjects were women suffering from vasomotor symptoms in the age group of 40-59 years, 10 of 48 cases still menstruate and 17 of 48 cases had amenorrhoeic duration of less than six months, plus the fact that the decreasing inhibin occurred several years before the menopause, resulting in an elevation of FSH, the first laboratory indication of the perimenopause.⁽⁴⁾ Thus, it may be these menstruating subjects who made the result show significant correlation between FSH and actions 14-17 without significant correlation between E_2 and actions 14-17, though it is theoretically accepted that estrogen deficiency results in epithelial and connective tissue atrophy at the vagi-

nal wall, causing vaginal dryness and dyspareunia⁽⁵⁾. From the low correlation between hormonal level and the symptom scoring system in this study, it may be explained that menopausal symptomatology may not solely depend on hormonal changes, familial, social and environmental factors should also be considered when dealing with these groups of clients. Nevertheless, further study on these issues are continuing with increasing subjects and the final results will be presented in the near future.

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