

STUDY OF GONADOTROPHIN LEVELS AFTER SURGICAL MENOPAUSE

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SUMMARY

Serum FSH and LH levels were measured following surgically induced menopause in twentyfive (25) menstruating women. Twenty-five women who had natural menopause for 3-5 years were taken as controls. Menopausal serum FSH value (the control group) was reached within 1-2 months of surgery whereas the LH values rose slowly to reach the menopausal level at 5-6 months.

Introduction

The problems of menopausal women has evoked great interest in studying the physiology of menopause for a long time. Much work has been done to study the endocrine changes in women who undergo natural menopause. It is well established that the gonadotrophin (FSH and LH) levels begin to rise 10-15 years preceding the cessation of menses (Davey 1986). Study of the endocrine changes in surgically induced (bilateral oophorectomy) menopausal women have been limited because of the fact that these relatively young women are given some sort of hormone therapy almost routinely in the developed countries. Fortunately, the problem of menopausal symptoms is much less in Indian women than in their western counter-parts. This gives one enough cases to study the normal physiological response in the group of young women who undergo bilateral oophorectomy and need no hormone therapy.

The present work was designed with an object to study the sequential changes in the gonadotrophin levels following surgically induced menopause in menstruating women. An attempt was also made to correlate the menopausal symptoms with the changes in gonadotrophin levels.

Material and Methods

Twenty-five premenopausal women, aged between 40-45 years, undergoing total abdominal hysterectomy with bilateral salpingo-oophorectomy for some benign lesions were selected as 'the study group'. The patients were regularly followed-up after the operation and the serum FSH and LH levels were measured at 1-2 months, 5-6 months and 11-12 months following surgery.

A group of 25 women who had undergone natural menopause 3-5 years earlier were taken as controls. The age range varied from 45-52 years. These women were otherwise healthy and had minimal or no menopausal symptoms. The reason for selecting women between 3-5 years

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after menopause was based on the fact that the gonadotrophin levels stabilise to a plateau sometime between 3-5 years after the natural menopause.

Serum FSH and LH were measured by Radio-Immuno Assay (RIA) employing the method of Midgley (1967) for FSH and that of Midgley and Jaffe (1971) for LH. Statistical analysis was done by Student's t test.

Results and Discussion

Analysis of the results shows that the mean serum FSH level in the premenopausal women who underwent surgical menopause (the study group) reached the identical level in comparison to those who had natural menopause (the control group) within 1-2 months after surgery. The variation between these two groups is not statistically significant ($p > 0.05$). However, the serum LH value is rather slower to rise in the study group. The 1-2 months mean serum LH value in the study group is significantly ($p < 0.05$) less than that in the control. The 5-6 months mean value of serum LH is similar (the difference being statistically insignificant) to that of the natural menopausal women.

The mean FSH levels showed a plateau during the one year study period starting 1 month after surgery. However, the mean LH level stabilised between 6 to 12 months after surgery.

On studying the range of values of these gonadotrophins, it is interesting to note that the wide range that was observed during 1-2 months after surgery in the study group had gradually narrowed down over a period of 11-12 months after surgery.

Out of 25 cases, only 2 (10%) cases complained of vasomotor symptoms and 5 (20%) had minimal psychological symptoms like mood changes. No patient com-

TABLE
Serum Gonadotrophin Levels in Women After Surgical Menopause and After Natural Menopause

	After surgical menopause (n = 25)			After natural menopause (n = 25) 3-5 years
	1-2 months	5-6 months	11-12 months	
Serum FSH (mIU/ml)	Range	48-114	50-106	48-102
	Mean \pm s.e.m.	68.5 \pm 4.69	67.0 \pm 3.72	70.73 \pm 2.34
Serum LH (mIU/ml)	Range	44 - 92	48 - 85	45 - 92
	Mean \pm s.e.m.	59.75* \pm 3.06	64.86 \pm 2.49	70.66 \pm 2.21

* Statistically significant ($p < 0.05$) in comparison with mean level in natural menopause.

plained of dyspareunia or loss of libido during the 1 year period of follow-up following surgery. Oestrogen therapy was not necessary in those two women with vaso-motor symptoms as the number of hot flushes were restricted to 1-4 episodes/day. Explanation of the physiology and assurance were sufficient to alleviate other symptoms. These clinical observations corroborate well with previous clinical study on surgical menopause (Mukherjee and Sarkar 1983).^{*} Regarding the gonadotrophin levels in these symptomatic women, no association could be found between FSH/LH values and the appearance of symptoms. Similar reports are found in the literature (Aksel *et al* 1976).

It has been known that in women approaching natural menopause, the gonadotrophin levels, particularly FSH, starts rising several years before the menopause (Reyes *et al*, 1977). The FSH level gradually reaches its peak value by 2-3 years after the cessation of menses (Chakravarti *et al* 1976). In surgically induced menopausal women, the gonadotrophin levels reach the menopausal levels by 1 month (Unger 1985) which correspond with the present study so far as the FSH level is concerned. Previous authors (Aksel *et al* 1976) have also found no significant relationship between gonadotrophin levels and menopausal symptoms.

Thus, from the present study, it may be further added to the physiology of surgical

menopause that both serum FSH and LH levels reach peak values much earlier (within 1-2 months and 5-6 months respectively) than in the natural menopausal women (2-3 years). Plateau of serum FSH level is reached earlier than that of LH. Furthermore, it is interesting to note that the wide individual variations in the gonadotrophin levels found in the early months after surgery gradually stabilise to a narrow range within 1 year.

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