HORMONAL ASSAY IN SECONDARY AMENORRHEA

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SUMMARY

The categorisation of Secondary Amenorrhea basing on the hormonal profile such as FSH, LH, Prolactin is certainly simplified the rational understanding of such a complex endocrinologic abnormality. The level of FSH in hypergonadotropic variety is significantly raised range being 90-232 mIU/ml where as prolactin level more than 30 ng/ml is taken as a standard to designates Hyperprolactinemic Amenorrhea. The diagnosis of PCOD had a positive correlation with increased LH/FSH ratio more than 3 (66%) which is supported by laparoscopic ovarian morphology. Prolactin level was significantly elevated more than 150 ng/ml with concomitant reduction of FSH and LH in cases of confirmed macroadenoma. Thus the hormonal assay in cases of Secondary Amenorrhea would simplify the categorisation as well as streamlining the specific management protocol.

INTRODUCTION

Sec Amenorrhoea is a distinct clinical entity due to derangement in function of the hypothalamo-pituitary-ovarian-uterine axis thereby resulting in absence of menstruation for a variable period. But to locate the site of dysfunction and as well as to search for the cause of the disorder has been a matter of great concern and challenging task before the clinician.

Within the last few years knowledge of the basic gynaecological endocrinology has been of paramount significance in the investigative approach in cases of Sec-Amenorrhoea. Thus the role of endocrinologic evaluation by RIA appears to be a very sound and plausible answer for evaluation. In view of this context this piece of work has been carried out in the department of Obstetrics and Gynaecology, S. C. B. Medical College, Cuttack, by subjecting the case of Sec-Amenorrhoea for hormonal assay of FSH, LH and Prolactin so as to stream line the management protocol.

MATERIAL AND METHOD

A sum total of fiftytwo cases of Sec. Amenorrhoea attending the out patient department of Obstetrics and Gynaecology of S. C.

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B. Medical College, Cuttack, constituted the study group during period from November 1990 to January 1992. Detailed history as well as meticulous clinical examination was performed in each case. Out of these, only six cases were excluded from the study in view of deficit response to progesterone challenge test as well as Oestrogen and Progesterone challenge test indicating non-responsive endometrium. Hormonal assay of FSH, LH and Prolactin by RLA were performed in the rest fourtysix cases of Sec Amenorrhoea and results correlated.

DISCUSSION

The hormonal level of FSH, LH and Prolactin as observed from (Table I) in terms of five category of Sec Amenorrhoea depicts that

Our observation findings as per the tables.

Table I

Hormonal levels in sec. amenorrhea

Category of Amenorrhea	FSH MIU/ml	LH MIU/ml	Prolactin ng/ml
1. Hypergonadotropic (10 cases)	90-232	40-150	8-20
2. Hypogonadotropic (7 cases)	2-5	2-3	5-15
3. Eugonadotropic (6 cases)	8-30	8-20	7-30
4. Amenorrhea with ↑LH/FSH Ratio (12 cases)	1-8	5.1-50	7-20
5. Hyperprolactinemic Amenorrhea (11 cases)	1-12	1-10	35-166

Table II

Distribution of cases of Hypogonadotropic Amenorrhea according to LH and FSH level

Clinical Diagnosis	FSH↓ LH↓	FSH→ LH↓	FSH↓ LH→	Total
Anorexia nervosa	2	1		3
Sheehan Syndrome	3			3
Hypothalamic Amenorrhea	1			1
Total	6	1		7

Table III

Distribution of cases of Eugonadotropic Amenorrhea according to Hormonal Profile

Clinical Diagnosis	No. of cases	LH MIU/ml	FSH MIU/ml	Prolactin ng/ml
Pituitary tumor	2	10-20	8-30	7-10
Post Pill Amenorrhea	2	12-13	10-12	25-30
Unknown	2	8-12	10-12	10-12
Total	6			

Table IV

Hormonal Profile in Hyperprolactemic Amenorrhea

Diagnosis	No. of cases	Prolactin ng/ml	FSH MIU/ml	LH MIU/ml
Macroadenoma	4	> 150 ng/ml	< 4	< 3
Microadenoma	3	90-120	< 4	< 4
Drug induced	3	40-60	10-12	8-10
Unknown	1	35	12	10
Total	11			

the FSH level was raised as high as 232 mIU/ml in ten cases of Hypergonadotropic amenorrhea. In premature ovarian failure the FSH levels are in the higher range whereas in tuberculous endometritis with ovarian failure the level is at the lowest range. Though authors such as Das et al (1991) advocated the critical limit of FSH more than 40 mIU/ml to designate as hypergonadotropic, our result showed that the level is raised much beyond this limit (90 mIU/ml). The FSH level were either normal or reduced in hypogonadotropic Amenorrhea, Amenorrhea with increased FSH/LH and Hyperprolactinemic Amenorrhea. Prolactin level in our series more than 30 ng/ml was taken as standard for Hyperprolactinemic Amenorrhea and the values ranges from as low as 35 ng/ml to as high as 160 ng/ml.

Out of seven cases of Hypogonadotropic Amenorrhea (Table - II in only one case of anorexia nervosa the FSH level was found to be normal with reduced LH level, whereas the rest six cases revealed significantly lower FSH as well as LH values when compared to that of early follicular phase.

All the hormonal profile in eugonadotropic

amenorrhea as observed from Table - III were within the normal range though in Post pill amenorrhea the prolactin level was in the high range (25-30 ng/ml) which correlates with observation of Khandelwal (1985).

Out of the sum total of 12 case of Amenorrhea with ↑LH/FSH about 66% demonstrated ratio > 3 and the rest ratio > 2. The diagnosis of polycystic ovarian disease could have a positive correlation with ↑LH/FSH ratio > 3 which is supported by the fact that the laparoscopic ovarian morphology in this group of Amenorrhea showed Sclerocystic changes in 83.5%. Further a significant observation could be demonstration of Sclerocystic ovarian morphology in 50% cases with LH/FSH ratio > 2 and < 3.

Hormonal profile in a sum total of 11 cases of Hyperprolactinemic Amenorrhea (Table IV) in our series, the prolactin level ranges from 35 ng/ml to 150 ng/ml. FSH and LH ranging from < 4 to 12 mIU/ml and < 3 to 10 mIU/ml respectively. The diagnosis of macroadenoma could be confirmed in 4 cases and prolactin level in this group was significantly elevated to more than 150 ng/ml with concomitant reduction of FSH and LH level. Microadenoma was observed in 3 cases and drug induced hyperprolactinemia in 3 cases, 2 of these patients were taking tricyclic antidepressant and one was taking cemetidine for peptic ulcer. In only one case the clinical diagnosis could not be known in which prolactin level was minimally raised (35 ng/ml).

Thus categorisation of cases of sec. amenorrhea as per the hormonal profile has not only simplified the understanding of such a complex clinical entity but it certainly stands out as one of the important investigative approach. Though it appears relatively unacceptable if analysed from the angle of cost effectiveness, these endocrinologic evaluation is certainly superior to vagaries of invasive as well as minimally investigative tool.

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