Pyridoxine for pre-menstrual syndrome

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Summary : **Pre-menstrual syndrome is a psycho-neuro-endocrine disorder of uncertain aetiology. It has its basis in the decrease in levels of dopamine and serotonin in the brain neurons due to changes in oestrogen and progesterone levels of ovulatory cycles. Pyridoxine acts as a co-factor in the enzymatic steps of tryptophan metabolism and serves to replenish dopamine and serotonin levels in the neurons and hence amelioration of premenstrual symptoms.**

This study judges the efficacy of pyridoxine 100 mg/day for a period of 3 months on the premenstrual syndrome score and also studies the relationship of menorrhagia and dysmenorrhoea to the presence and severity of PMS.

Introduction

Some women behave and feel differently during some time of the menstrual cycle. Is it a psychiatric disorder? Is it a neuroendocrine problem? Or is it maladjustment to psychosocial stress?

PMS is defined as cyclic appearance of one or more physical, emotional or behavioural symptoms during the luteal phase of the menstrual cycle followed by amelioration of symptoms with the onset of the menstrual flow, such that the symptoms affect work, efficiency, relationships and social life of the woman. The symptoms could be grouped as:

1. Physical - headache, backache, breast tenderness, weight gain, bloated sensation.
2. Emotional - labile mood, oversensitivity
3. Behavioural - irritability, depression, fatigue, anxiety, tension, anger.

PMS is a syndrome of multiple aetiologies and it is rightly said that "where scientists have failed to provide proof, practitioners have seldom failed to provide theories". Every possible hormone, iron, vitamin, neurotransmitter and neuromodulator has been implicated. In this study, we have endeavoured to study the efficacy of pyridoxine on the premenstrual symptomatology.

Material and methods

All newly registered patients attending the gynaecology OPD were interviewed during the study period September 1995 to June 1996.

Inclusion criteria

1. age 20-40 years, both inclusive
2. regular menstrual cycles (22-35 days)
3. exclude patients with menses delayed for more than 5 days, with otherwise normal cycles
4. exclude patients with menorrhagia with active bleeding which has lasted for more than 8 days
5. absence of psychiatric disorder
6. patient not on oral contraceptive pills

A detailed history was elicited which included age, marital status, obstetric history, menstrual pattern, symptoms-physical, emotional or behavioural. Patients diagnosed as suffering from PMS were given a pretreatment score and started on tablet pyridoxine 100 mg/day, to be taken for 3 months. She was asked to follow-up monthly for 3 months. Every month her PMS score was re-evaluated to ascertain change in the score with therapy.

Scoring pattern

Total number of symptoms - 20
Grading of symptoms - 0 - absent symptoms

1- mild symptom not interfering with activities
2- symptom interferes with activity but is not disturbing
3- severe, disabling symptom

Minimum score 0, maximum score 60.

Criteria for diagnosis of PMS

- premenstrual score more than 5
- premenstrual score not less than twice the postmenstrual score
- mild PMS - score 6-20
- moderate PMS - score 21-40 or at least 5 symptoms of grade 2
- severe PMS - score 41-60 or at least 5 symptoms of grade 3

Criteria for improvement

- reduction of premenstrual score to less than or equal to 5 at follow-up
- reduction of premenstrual score to less than half of previous score

Symptoms *Grade 0, 1, 2, 3.*

A. 1. nervous tension
2. mood swings
3. irritability
4. anxiety
5. angry outbursts

B. 1. weight gain
2. swelling of extremities
3. breast tenderness
4. bloated abdomen

C. 1. headache
2. craving for sweets
3. increased appetite
4. head pounding
5. fatigue
6. dizziness / fainting

D. 1. depression
2. forgetfulness
3. easy crying
4. confusion
5. sleeplessness

Results

Study period - Sept. 1995 to June 1996.
Total number of patients interviewed - 893
Number of patients with PMS - 493
Incidence of PMS in this study - 49.16%

Table I
Age distribution

Age (yrs)	No.	Percentage
20 - 25	31	7
26-30	196	44.6
31 - 35	182	41.5
36-40	30	6.8
	439	

Table II
Parity, marital status

	No.	Percentage
Unmarried	140	31.9%
Nullipara	91	20.7%
Parous	208	47.4%

Table III

Grade of PMS	No.	Percentage
Mild	257	58.54
Moderate	176	40.09
Severe	6	1.36

Table IV

Type of Menstrual Flow	No.	Percentage
Scanty	237	54
Heavy	130	29.61
Moderate	72	16.4

Table V

Dysmenorrhoea	No.	Percentage
Present	324	73.8
Absent	115	26.2

Discussion

PMS was first described by Frank, an American gynaecologist in 1931 and the phrase "Premenstrual Syndrome" was first used in 1953 by Greene and Dalton. Pre-requisites for the diagnosis of PMS are:

1. physical, emotional or behavioural symptoms,
2. absence of baseline psychiatric disorder,
3. cyclicity of symptoms i.e. symptoms begin in the luteal phase of the cycle and remit with onset of menstrual flow,
4. symptoms interfere with work, efficiency and social life of the woman.

PMS occurs only in ovulatory cycles. Also, a steady state of ovarian sex steroid levels are not associated with PMS. This means that it is the variability i.e. the rise and fall of oestrogen and progesterone levels in an ovulatory cycle that is responsible for PMS. Both these hormones affect monoamine brain transmission notably, dopamine and serotonin. Agents that increase the brain serotonergic activity are known to elevate mood.

Pyridoxine in the form of pyridoxal phosphate is a co-factor in enzymatic steps of tryptophan metabolism. Also, B_6 is a co-factor in the synthesis of the immediate precursor of dopamine. Thus B_6 potentiates an increase in the brain content of monoamines - dopamine and serotonin.

The severity of PMS is inversely proportional to the amount of menstrual blood loss which means patients with severe PMS were more likely to complain of scanty periods.

Table VI

Correlation of amount of menstrual flow to severity of PMS

Type of Menses	Mild	Mod	Severe PMS	Total
Scanty	123 (47.85%)	108 (61.36%)	6 (100%)	237
Heavy	94 (36.57%)	36 (20.45%)	0	130
Moderate	40 (15.56%)	32 (18.18%)	0	72
	257	176	6	

Table VII

Correlation of dysmenorrhoea to severity of PMS

Dysmenorrhoea	Mild	Mod	Severe PMS	Total
Present	209 (81.32%)	109 (61.93%)	6 (100%)	324
Absent	48 (18.67%)	67 (38.06%)	0	115
	257	176	6	

Table VIII

Follow - up	
Total PMS patients on pyridoxine	439
Patients lost to follow-up	56 (12.75%)
Patients with follow-up	383 (87.24%)
Effect of pyridoxine therapy for 3 months	
Worsening of score	0
Static score	97 (25.33%)
Improvement of PMS score	286 (74.67%)

Also, dysmenorrhoea has a positive correlation with the severity of PMS. Presence and severity of dysmenorrhoea is directly proportional to the presence and severity of PMS.

Conclusion

Pre-menstrual syndrome affects 5% of women in their lifetime. Severe symptoms appear to reflect a discrete mood disorder affecting women aged 25 to 35 years of age who are vulnerable to stress (Ramcharan, Love 1992).

Use of pyridoxine throughout the menstrual cycle has a particularly beneficial effect on the emotional component of PMS (Doll & Brown, 1989) and this therapy is devoid of side-effects. 74% of patients responded favourably to pyridoxine with a decrease in premenstrual score over a period of 3 months. PMS is directly proportional to dysmenorrhoea and inversely to the amount of menstrual blood loss (menorrhagia). Although there is no pharmacologic "cure" for PMS, symptoms usually can be controlled successfully with recent drugs.

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References

1. Doll H, Brown S. J Coll Gen Pract 39:364;1989.
2. Frank RT. Archives of Neurology Psychiatry 26:1052;1931.
3. Greene R, Dalton K. Br Med J 1:1007;1953.
4. Ramcharan S, Love EJ. J Clin Epidemiol 45:377;1992.