

STUDY OF THYROID FUNCTION IN HYPEREMESIS GRAVIDARUM

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SUMMARY

Sixty cases of hyperemesis gravidarum were compared with 60 control cases having pregnancy without hyperemesis in the present study. Routine haemogram and complete urine examination was done. Serum T_3 and T_4 levels were estimated by ELISA Technique (Biomera Catalog No. 1063).

Majority of patients (53.33%) were primiparae in the age group (18-21 years) in their first trimester (less than 12 weeks) : Two third cases (66.66%) belonged to the middle socio-economic class. Serum T_3 level was raised in 53.33% cases with a mean level of 13 ngm/ml. Serum T_4 level was raised in 80.0% cases with a mean level of 12.22 mg/l. When compared with the control group, serum T_3 level was raised only in 6.66% cases, with mean of 1.269 ngm/100 ml) and serum T_4 level was raised in 13.33% with mean level of 8.679 ngm/100 ml. Thus hyperemetic pregnant women are supposed to have true hyperthyroid state differing from classical hyperthyroidism by a lower increase T_3 index. This is thought to be due to high hCG level which has a thyroid stimulation effect.

INTRODUCTION

Hyperemesis gravidarum is a hyperthyroidism condition where there is a marked increase in serum T_4 level and a slightly increased serum T_3 level. Masson et al (1985)

stated that in normal early pregnancy the thyroid gland is physiologically activated by hCG which has an intrinsic thyroid stimulating effect, causing enlargement of thyroid gland follicles & hypertrophy of cells. Whereas in hyperthyroidism there is increased concentration of both serum T_3 and T_4 (T_3 usually exceeds that of T_4)

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MATERIAL & METHODS

The present study was undertaken in antenatal women attending the out patient and Inpatient department of S. R. N. Hospital and K. N. M. Hospital in the Deptt. of Obst. & Gynaec., M. L. N. Medical College, Allahabad. The cases were divided into two groups :

Group I - 60 cases of hyperemesis gravidarum

Group II - 60 cases of gestational matched controls (normal pregnancy without hyperemesis gravidarum.)

A detailed history including menstrual & obstetric history was taken and thorough clinical examination was carried out.

Routine haemogram and complete urine examination were performed. Special Investigations including serum bilirubin, serum T_3 & T_4 levels estimated by ELISA Technique (Biomerica Catalog No. - 1063) at 6-20 weeks of gestation and repeated every 2 weeks until the level came to normal value as shown under.

Expected Values Normal range of T_3 - 0.75-2.1 ng/ml Normal range of T_4 - 4.0-11.0 ng/100 ml

RESULT

Age of the patients varied from 18 to 29 years. Maximum number of patients (53%)

fell between 18-21 years. 26.0% belonged to the age group 22-25 years, the rest were in the age group of 26-29 years.

Gravidity

The maximum number of patients 53.3% were primigravidae and 33.3% were second gravidae, only 13.4% cases were gravidae three or more.

According to gestational age, 40.0% cases of hyperemesis were seen between 5-8 weeks, 53.3% cases between 8-12 weeks of gestation and only 6.66% above 12 weeks of pregnancy (Table I).

The maximum number of cases (66.66%) belonged to the middle socio-economic status, the rest of the cases were from the lower socio-economic class.

Out of 60 cases, the serum T_3 level was raised in 32 cases (53.33%), while in the matched control group it was raised in 4 (6.66%) cases (Table II).

The serum T_4 level was raised above the normal range 48 cases (80.0%), of hyperemesis whereas in the control group it was raised in 8 cases (13.33%). As shown in Table III). The rise in serum T_3 as well as serum T_4 level in hyperemesis gravidarum was found to be statistically significant ($p < 0.001$) Table IV.

Table I

Gestational Age in Hyperemesis Gravidarum & its control cases

Gestational Age	Hyperemesis Gravidarum Cases Group - I		Matches control cases Cases - Group - II	
	Number	Percent	Number	Percent
5 - 8 week	24	40.0%	24	40.0%
8 - 12 week	32	53.33%	34	56.66%
More than 12 week	4	6.66%	2	3.33%
Total	60	100%	60	99.99%

Table II

Serum T₃ level in cases of hyperemesis gravidarum & control group

Level of serum T ₃	Hyperemesis Gravidarum Cases Group - I		Matches control cases Cases - Group - II	
	Number	Percentage	Number	Percentage
Normal level (0.75 - 2.1 mg/ml)	28	46.66%	56	93.33%
Increased level more than 2.1 ng/ml	32	53.33%	4	6.66%
Total	60	100.0%	60	99.99%

Table III

Shows serum T₄ level in hyperemesis gravidarum & matched control group

Serum T ₄ level	Hyperemesis Gravidarum Cases Group - I		Matches control cases Cases - Group - II	
	Number	Percentage	Number	Percentage
Normal level 4-11 ug/100 ml	12	20.0%	52	86.66%
Increased level more than 11.1 ug/100 ml	48	80.0%	8	13.33%
Total	60	100%	60	99.99%

Table IV

Thyroid function in hyperemesis gravidarum

Thyroid Hormone	Normal lab Range	Hyperemesis gravidarum case - 60			Matches control cases - 100			t-test and p-value
		Mean	Range	S. D.	Mean	Range	S. D.	
T ₃	0.75 - 2.1 ngm/ml	2.13	0.75 to 3	0.646	1.269	0.75 to 2.6	0.538	t=5.08886 p<0.001
T ₄	4.0-11.0 mgm/100ml	12.2	11.0- 16.0	1.29	8.679	0.75- 12.7	2.376	t=5.4368 p<6.001

DISCUSSION

In the present study hyperemetic pregnant women were selected and their serum T₃ & T₄ levels were estimated and compared with reference to age, gravida and gestation period. Majority of patients (53.3%) were young primiparae belonging to 18-21 years age group and 33.3% were second gravidae.

Most of the patients (93.3%) were in the first trimester pregnancy (less than 12 weeks).

Two third of the cases (66.6%) belonged to the middle socio-economic class and one third (33.3%) to the low socio-economic class.

Comparing the serum level of T₃ and T₄, it was seen that serum T₃ level was raised in 53.3% cases with a mean level 2.13 ngm/ml and serum T₄ in 80% cases, with a mean level 12.22 ug/100 ml, while in control cases T₃ level was raised in 6.66% cases with mean 1.269 ngm/ml and serum T₄ level raised in 13.33% cases with mean level 9.679 ugm/100 ml. Bouillon et al (1982) found slight rise in serum

T₃ level (36.36%) cases) market increased in T₄ level (73.0%), Chin & Lao (1988) found serum free T₄ and total T₄ level to be increased in hyperemesis gravidarum showing serum free T₄ level raised in 39.3% and total T₄ in 34.78% cases.

Thus most of the patients with hyperemesis are supposed to have a true hyperthyroidism with a lower increase in T₃ index. Malnutrition & acute illness are known to be associated with decreased conversion of T₄ and T₃.

Hyperemesis occurs in first trimester of pregnancy when hcG levels are high & hcG has thyroid stimulating effect.

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...of clinical as well as histologic infection. ... was explained in relation to other indicators ... region of antibodies. The accuracy of CRP ... the conventional management of patients ... an early picture of infectious conditions ... out the value of C-reactive protein (CRP) ... fetal risk. The study was carried out in ... infection is essential for both maternal and ... in the newborn. Hence early detection of ... laboratory results are in the mother and refer

...tion in the form of chlamydiae and ... of pregnancy involves the risk of in- ... and on the other hand, profes- ... Early delivery leads to the problem ... mentary patients - children in the late- ... Management of premature rupture of ...

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