

REPRODUCTIVE PERFORMANCE IN HYPOTHYROID WOMEN

By

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SUMMARY

Thirty pregnancies in 27 hypothyroid women were observed to find out the outcome of pregnancy. It was found that untreated hypothyroidism was associated with significantly high abortion rate and IUGR. In patients with pregnancy wastage, prior treatment of hypothyroxinaemia for at least one year was not associated with abortions but there were IUGR, preterm labours, wound complications and deficient lactation.

Introduction

It is generally agreed that hypothyroidism is associated with a remarkable loss of fertility. It has also been attempted to correlate unsuccessful outcome of pregnancy with subnormal thyroid function (Winikoff *et al*, 1960; Man and Jones, 1969; Winikoff and Malinek, 1975). Man and Jones (1969) commented that a high proportion of women with hypothyroxinaemia had spontaneous abortions, premature labour, IUGR, stillbirth. Winikoff *et al* (1960) found high incidence of abnormalities, most serious being defects of CNS in the newborns of hypothyroid mothers. There is no definite evidence whether T_4 is necessary for foetal development (Innerfield *et al*, 1977) or which level of circulating thyroid hormone would prevent foetal maldevelopment (Winikoff *et al*, 1960).

Maternal T_3 and T_4 cross the placental

barrier poorly and TSH does not cross the placenta (Macdonald, 1985). Also maternal and foetal thyroid glands function independently of each other (Macdonald, 1985) and complete hypothalamo-pituitary-thyroid axis begins to function as a unit in the foetus after about the 18th week (Innerfield and Hollander, 1977). How maternal hypothyroidism affects the conceptus is ill-understood. But it is known (Keele *et al*, 1982) that thyroid has multitude of functions in the body and that thyroid hormone has an important developmental role—the control of protein synthesis via RNA and thus regulation of growth. It is presumable that hypothyroidism might result in an abnormal conceptus which is aborted or adversely affected. Winikoff *et al* (1960), Nicolof *et al* (1970) found a low rise in the binding capacity of TBG in the abortion group of cases in their study.

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Patients and Methods

The prospective study included 30 pregnancies in 27 women over 10 years

period (1978-87) treated in one of the units in the Department of Obstetrics & Gynaecology, I.P.G.M.E.R. & S.S.K.M. Hospital, Calcutta. Thyroid hormones were assayed by RIA technique. As suggested by Prout (1975) to be the best method, diagnosis of hypothyroidism was mainly made on the value of the "circulating levels of TSH".

Six pregnancies were in untreated hypothyroids and 3 had started thyroxin only 3 to 6 months prior to conception. Rest all the patients received thyroxine from at least one year prior to conception and which continued all through. The usual dosage range of Thyroxine Sodium (100 mcg tab) was 100 to 300 mcg daily—the optimum dosage the patient could tolerate without adverse symptoms and signs was given.

Results

Table I shows the general patients' profile.

TABLE I

A. Duration of married life:			
Below 3 years	3 to 5 years	More than 5 years	
Nil	11	19	
B. Age:			
Below 25 yrs.	25 to 30 yrs.	31 to 35 yrs.	36 yrs. & above
4	19	5	2
C. Parity:			
Primigravidae	Gravida 2 to 5	Gravida 6 & above	
11	13	6	

All the primigravidae were married 3 to 5 years. Except one who had thyroidectomy, rest 10 were suffering from infertility and hypothyroid state was discovered in the course of the investigation.

Table II illustrates the past obstetric

performance/complications in cases of undiagnosed and untreated hypothyroidism. Of the 19 multigravidae, as many as 13 had past abortions (68.4%).

TABLE II

Past Obstetric history	
1. Past abortion	13 cases
(consecutive 3 or more)	8 cases
2. Intrauterine growth retardation	6 cases
3. Past Caesarean section	4 cases
4. Preeclampsia	3 cases
5. Cervical incompetence	3 cases

Table III shows the additional risk factors in the pregnancies studied.

TABLE III

Associated medical/surgical/obstetric disorder:—

1. IUGR	5 cases
2. Diabetes mellitus	4 cases
3. Past Caesarean section	4 cases
4. Pre-eclampsia	2 cases
5. Qh-immunisation	1 case
6. Thyroidectomy	1 case
7. Fibromyoma uterus	1 case

Table IV shows the serum thyroid hormone and TSH values.

Table V shows the obstetric outcome of the 30 pregnancies studied.

All the 9 abortions occurred between 6 to 12 weeks of pregnancy. 6 of the cases were first diagnosed as hypo-

TABLE IV

Thyroid hormone/TSH values:		Normal
1. T ₃ range	— 0.6 to 1.2 ng/ml	(0.8 to 1.6 ng/ml)
2. T ₄ range	— 30 to 54 ng/ml	(50 to 115 ng/ml)
3. TSH range	— 5 to 17.5 μ U/ml	(0.5 to 4 microl I/ml)

TABLE V

Obstetric outcome Pregnancy outcome (total 30 pregn.)	Mode of delivery (21 viable births)
(1) Abortions — 9	(1) Vaginal — 7
(2) Preterm delivery — 6	(2) Caesarean section — 14
(3) Term delivery — 15	(a) Elective — 10
(4) Post term delivery — nil	(b) Emergency — 4

thyroid on their first visit and admission in our hospital as threatened abortion (habitual). Thyroxine therapy started immediately was of no help and all aborted. The other 3 had thyroxine for previous 3 to 6 months.

Of the above 6 habitual aborters who were put on thyroxine, 3 patients came in 1-2 years with another pregnancy and all had successful outcome. 2 were lost in follow-up and one was suffering from secondary infertility.

Six patients had preterm delivery. 5 had premature onset of labour and vaginal delivery. The other, with IUGR, required emergency CS at 36 weeks on

evidences of foetal jeopardy.

Fifteen patients delivered between 37-40 weeks. 2 delivered vaginally and 13 required CS. 4 had emergency CS for acute foetal distress in labour. 9 patients had elective CS for additional risk factors—diabetes mellitus, past CS and/or IUGR (there was overlapping). 3 patients in this group had consecutive previous 5 pregnancies aborted.

There was no maternal death. Notable maternal complications were deficient lactation and wound complications.

There were 3 neonatal deaths (first week) in preterm births from prematurity and asphyxia.

TABLE VI
Maternal/Perinatal outcome:

Maternal results (30 pregnancies)	Perinatal results (21 deliveries)
A. Mortality — nil	A. Mortality — 3
B. Morbidity—	(all in preterm births)
(a) P.P.H. — 3	B. Morbidity—
(b) Wound complications — 5	Diarrhoea — 1
(episiotomy/CS)	Jaundice — 1
(c) Puerperal Pyrexia — 2	C. Congenital goitre or
(d) Deficient lactation — 8	malformations — nil
(There was overlapping)	

Comments

Reproductive performance is definitely lowered in hypothyroid women. 6 of the 9 abortions (66.6%) in the present review were in untreated hypothyroids. The other 3 too had thyroxine for 3 to 6 months only. Analysis of past obstetric performance also showed a very high rate (68.4%) of abortions in untreated hypothyroids. 61.5 per cent in this group (8 out of 13) were habitual aborters. 1 to 2 years of thyroxine therapy heralded successful outcome. Apart from habitual abortion, the disorder was also found to be associated with a high rate of foetal growth retardation, preterm delivery and deficient lactation.

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